1907 (11) I

DIGESTIVE. TONIC. NUTRITIVE.

Byno-Hypophosphites.

"One of the most popular tonics of the day."
—British Medical Journal.

ADVANTAGES

The inert sugar of the ordinary syrupy preparations is in BYNO-HYPOPHOSPHITES replaced by the active Malt Extract BYNIN. Hence BYNO-HYPOPHOSPHITES is DIGESTIVE & NUTRITIOUS, containing as it does the diastasic ferment of Carbo-hydrates and also the soluble Phosphates and Albumenoids of the finest malted barley.

BYNO-HYPOPHOSPHITES is a **TONIC** not only to the nervous system but also to the heart muscle and digestive apparatus.

With **BYNIN** as a vehicle, it contains the Hypophosphites of Iron, Manganese, Calcium, and Potassium, together with the Alkaloids of Cinchona and Nux Vomica in combination with their natural acids, in which form they are more readily assimilated. The quantity of Alkaloid is carefully standardised, there being the equivalent of 1-40th grain of Strychnine in each ounce.

The presence especially of Iron and Manganese in this preparation indicates its value as a direct hæmopoietic agent.

The Hypophosphites, taken as a group, are invaluable restoratives in cases of brain fatigue and nervous exhaustion. It is a matter of clinical observation that PHOSPHORUS, essential in the production of the lecithin compounds of the nervous system, is FAR MORE READILY ASSIMILATED in the form of HYPOPHOSPHITES than as Phosphates, Phosphoric Acid, or even free Phosphorus.

The other allied tonics in which BYNIN is used are:

Bynin-Amara—Easton Syrup. Byno-Phosphates—Chemical Food.

SAMPLES FREE TO THE MEDICAL PROFESSION.

Allen & Hanburys Ltd., LONDON.

"A perfect combination of Malt Extract and Cod-Liver Oil."—*British Medical Journal.*

Bynol. "The Perfected" Malt & Oil.

BYNOL, though containing a much larger percentage of COD-LIVER OIL than the ordinary preparations of MALT and OIL so widely sold, is, nevertheless, not only free from all unpleasant taste, but has a most agreeable nutty flavour, so that it is relished as a sweetmeat by many children. It can be taken without difficulty by delicate patients, being readily digested and assimilated. This result is due in large measure to the intimate combination of the MALT EXTRACT with the OIL, globules of the latter not being distinguishable even under a microscope.

The Malt Extract employed is exceptionally nutritious and active, while the Cod-liver Oil is of absolute purity, being made at Allen & Hanburys' own factories in Norway, from the fresh and selected livers of the Cod-fish only.

SAMPLES FREE TO MEDICAL MEN.

The late Sir ANDREW CLARK, in a Lecture at the London Hospital, remarked:—

"I have said that these fibroid cases are poor creatures, thin and white, and have what may be called nutritive debility, and the question is, What am I to do with them? You cannot do better than endeavour to make the patient walk in the way of physiological righteousness. But that sometimes will not do. Some people may be physiologically well behaved, and somehow they do not thrive on it. Can you do anything in those cases? There are two remedies which sometimes do succeed where the ordinary diet will not succeed in nourishing the patient—the one is Cod-liver Oil and Malt given with food—a preparation called **BYNOL**—*and the other is the remedy called* **BYNIN EMULSION,** *consisting of Hypophosphites, Oil, and Malt; both are prepared by Messrs. ALLEN & HANBURYS. These are two good nutritive agents in promoting nutrition."*

Allen & Hanburys Ltd., LONDON.

Offices, Laboratories & Warehouse—BETHNAL GREEN, E.
City House—PLOUGH COURT, LOMBARD STREET, E.C. *West End House*—VERE STREET, W.
Food Manufactory—WARE MILLS, HERTS. *Cod Liver Oil Factories*—LOFODEN & SONMÖR NORWAY.
Depot for AUSTRALIA—484, COLLINS STREET, MELBOURNE.
See also pages iii, v, vi, vii.

THE

"Allenburys" Throat Pastilles

Manufactured by ALLEN & HANBURYS Ltd.

THE increased knowledge of the local treatment of the various morbid conditions of the Throat necessitates nowadays the employment of a greater variety of drugs, and in a more palatable and demulcent form than the lozenges in common use. These Pastilles have been in use many years, and the following list is a result of the experience of many practitioners.

For the convenience of the Medical Profession the Pastilles may be conveniently grouped under the following headings.

For Ordinary Relaxed Throat.

No. 11—Chlorate of Potash, 1 grain in each.
,, 32—Red Gum and Chlorate of Potash (Gum: Rubr: gr: ii, Pot: Chlor: gr: i.).
,, 14—Tannin, 1 grain.
,, 29—Rhatany and Cocaine (Ext: Kramer: gr: ii. Cocain: gr: 1-10th).

For Overstrain of Throat involving Relaxation.

No. 38—Chlorate of Potash, Borax and Cocaine (Pot: Chlor: et Boracis āā. gr: i. Cocain: gr: 1-20th).
,, 47—Alum and Tannin (āā. gr: i.).

These are also useful in relieving granular pharyngitis (Clergyman's Sore Throat). For the removal of the Tenacious Mucus, Ammon: Chloride Pastilles are indicated.

For Irritable Relaxed Throat with Elongated Uvula.

No. 29.—Rhatany and Cocaine (Ext: Kramer: gr: ii. Cocain: gr: 1-10th).
,, 31.—Red Gum and Cocaine (Gum: Rubr: gr: ii. Cocain: gr: 1-20th).
,, 24.—Cocaine, 1-10th and 1-20th grain.
,, 16.—Bromide of Ammonium.

For Sore Throat of Influenza and Fever.

No. 6.—Aconite. Each Pastille equals ½ minim of B.P. Tincture.
,, 2.—Ipecacuanha, ½ grain.

Both are useful for the Feverish Colds of Children.

For Sore Throats & Tracheitis, Influenza Cold.

No 43.—Menthol, 1-10th and 1-20th grain.
,, 19.—Chloride of Ammonium, 2 grains. Stimulant Expectorant.
,, 4.—Compound Morphia and Ipecacuanha (Morphinæ, gr: 1-40th: Ipecacuanhæ gr: 1-5th; Scillæ, gr: 1-5th).
,, 45.—Menthol and Rhatany (Menthol, gr: 1-20th; Ext: Kramer: gr: ii.).

For Acute Tonsillitis and Diphtheritic Throat.

No. 9.—Menthol, Cocaine and Red Gum (Menthol and Cocaine, āā. gr. 1-20th; Red Gum, gr. ij).
No. 44.—Menthol and Cocaine (āā. gr.: 1-20th).
,, 46.—Menthol and Bromide of Ammon. (Menthol, gr: 1-20th; Ammon. Bromidi, gr: i.).
,, 15.—Carbolic Acid, ½ grain.
,, 41.—Eucalyptus Oil.
,, 30.—Boracic Acid, 1 grain.
,, 5.—Opium and Belladonna. Equals the Lozenges of the B.P.

Compound Guaiacum, Guaiacum, Potash Chlorate, and Red Gum may be used with advantage in stages of recovery or Chronic Enlarged Tonsils.

For Acute Pharyngitis, Acute Inflammation of Pharynx.

AS ADJUVANT USE.

No. 5.—Opium and Belladonna. Equals the Lozenges of the B.P.
,, 6.—Aconite. Equals ½ minim of Tincture, B.P.
,, 24.—Cocaine, 1-10th and 1-20th grain.

During recovery, use ASTRINGENT PASTILLES

For Irritable Throat of Phthisis, Laryngeal Phthisis.

No. 1.—Morphia, 1-40th grain.
,, 26.—Codeine, ⅛th grain.
,, 34.—Terebene, 2 minims.
,, 36.—Pumilio Pine, 1 minim.

For Ulcerated Conditions of Mouth, Tongue, Gum Boils.

No. 17.—Chlorate of Potash and Borax, āā. gr: i.
,, 30.—Boric Acid 1 grain.
,, 15.—Carbolic Acid, ½ grain.

☛ *In ordering these Pastilles, numbers may be quoted for convenience.*

These Pastilles are supplied in 1-lb. bottles, and in boxes containing 3 ozs.

Allen & Hanburys Ltd., LONDON.

THE

"Allenburys" Foods

FOR

INFANT FEEDING.

A PROGRESSIVE SERIES OF FOODS.

The Foods constituting the series described below are not interchangeable, but should be used in succession as indicated. Perfectly sterile in themselves, they are best given with the "Allenburys" Feeder which is capable of easy and complete sterilization, thus presenting a physiologically accurate diet, free from all fear of contamination by the products of decomposition.

The "Allenburys" Milk Food, No. 1,

Affords, when prepared for use, a correct substitute for human milk. It is manufactured from fresh cow's milk, so modified as to present all the constituents of human milk in their true relative proportions. Being in a desiccated and sterilized form, it requires only the addition of *boiled* water to obtain a pure and sterile food suitable for infants during the first three months of life.

The "Allenburys" Milk Food, No. 2,

Is identical with No. 1, with the addition of small quantities of maltose, dextrine, and soluble phosphates derived from the digestion of whole meal with Malt Extract. These ingredients are a valuable adjunct to the increasing needs of digestion, yet the Food is readily and easily assimilated, there being no unconverted starch present. The No. 2 Food is designed for children between three and six months of age.

The "Allenburys" Malted Food, No. 3,

Is not a *milk*, but a purely *farinaceous* Food, prepared by improved methods after Baron von LIEBIG's formula. The basis is fine wheaten flour, which has been thoroughly cooked and partially digested by an active Malt Extract, so that a large proportion, but not all of the starch has been converted. It is particularly rich in soluble phosphates and albumenoids.

This Food should be given from six months and upwards. For the first month or so after the change of diet it is generally advisable, instead of using cow's milk, to employ the "ALLENBURYS" MILK FOOD, No. 1 or No. 2, in preparing it. The demand on the child's digestive organs is less abrupt, and a humanized milk is used in place of the more indigestible cow's milk. This precaution is specially recommended in the case of delicate children.

Allen & Hanburys Ltd., Plough Court, Lombard Street, LONDON.

Infants' Food Manufactory: WARE MILLS, HERTFORDSHIRE.

☞ "A distinct advance on Easton's Syrup."—*The Lancet.*

Bynin Amara

TRADE MARK.

This preparation is a greatly improved modification of the well-known Easton's Syrup, in which the Phosphates of Iron, Quinine, and Strychnine are united with **BYNIN (Liquid Malt)**, affording at one and the same time a specific digestive, restorative, and anti-febrile tonic. The nervous system is restored in tone, the enfeebled blood corpuscles are strengthened, and the digestive apparatus is helped and guided by this valuable combination of necessary drugs. The desire for food is once more restored, and further, and what is most important, the capability of digesting it (especially the farinaceous portion) is increased.

The vehicle "BYNIN" is prepared from the finest Barley Malt by a special process, so that, although liquid, it contains as powerful diastasic properties as the ordinary viscid extract. Hence in cases where formerly Easton's Syrup was contra-indicated, owing to its tendency to produce indigestion, BYNIN AMARA is now successfully given, thereby supplying a most useful therapeutic agent.

Recent Medical Reports.

The British Medical Journal *writes:*

"The preparation is very palatable, and there is no doubt it will be appreciated as a pleasant means of obtaining the tonic effects of Easton's Syrup combined with the diastasic and nutritive value of Extract of Malt."

The Medical Press *writes:*—

". . . Not only is the taste improved, but, in addition to the well-known tonic properties of the formula we have an active digestive agent of farinaceous foods . . a very ingenious and useful modification of an old and esteemed formula."

The Lancet *writes:*—

"This excellent preparation is a distinct advance on Easton's Syrup . . . admirably adapted for the administration of one of the best tonic combinations known."

The Hospital Gazette *writes:*—

"The digestive properties of Bynin are so powerful that alone it is a valuable therapeutic agent; and it is obvious that Bynin Amara, containing as it does the above-named phosphates, is a tonic of exceptional potency and value."

SAMPLES FREE TO MEDICAL MEN ON APPLICATION.

Allen & Hanburys Ltd., Plough Court, Lombard Street, LONDON.

Telegrams—"NURTURING, LONDON."

The ACME of Beef Nourishment.

"BORTHWICK'S BOUILLON."

BRAND—

"BI-WIN."

381, Kingsland Rd., LONDON, N.E.

What the "HOSPITAL" says:

BORTHWICK'S BOUILLON BRAND "BI-WIN."

"We have received a sample of this well-known preparation, and our renewed acquaintance with it confirms the high opinion which we formed when it was first submitted to our notice. It is a very concentrated preparation, consisting of solid matter to considerably over 50 per cent., and these solids consist not only of extractives of meat, but also of peptones and albumoses—**hence there are present in "BI-WIN" not only stimulating but nutritive substances,** which render the preparation eminently suited for the purpose of **nourishing invalids and others** whose strength has been lowered by wasting disease or mental worry. It is a distinctly agreeable beverage and may be used alone or with all kinds of soups, stews, and hashes.

"GLYCEROL OF MALT"

(PRICE).

Prepared from the Finest Scotch Winter Barley, and combined only with

PRICE'S GLYCERIN.

"GLYCEROL OF MALT" is unique in this, that while its Digestive Power ranks high among Malt Preparations, it contains no other preservative than PRICE'S GLYCERIN, and this, while perfectly innocuous, provides the very element required to render it a complete food, viz., the Fat-producing quality characteristic of Glycerin (see "Properties and Uses of Glycerin," by M.D., M.R.C.S.).

It is very pleasant to the taste, and its great nutritive properties may be taken advantage of by Children and Invalids, Growing Youths, Convalescents, Brain Workers, Athletes, Professional and Business Men and Women.

PREPARED IN PHARMACEUTICAL DEPARTMENT OF

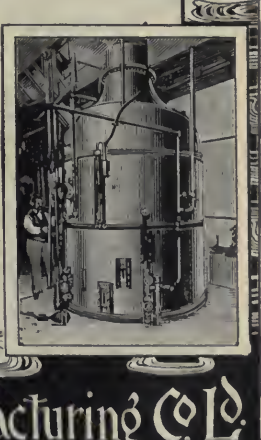
PRICE'S P. C. CO., LTD.

Belmont Works, BATTERSEA, S.W.

MALTINE WITH COD LIVER OIL

A COMBINATION of "Maltine" and 30 per cent. of the Purest Norwegian Cod-Liver Oil. The combination of the Oil with "Maltine" is effected by an ingenious vacuum process original with the MALTINE MANUFACTURING COMPANY, which admirably disguises the disagreeable odour and taste of the oil, prevents rancidity, and assures stability.

"The therapeutic value has been so thoroughly recognized and is so well known. . . . . Patients unable to tolerate the purest and most carefully prepared Cod-Liver Oil can readily digest and assimilate it when combined with 'Maltine.' . . . We can recommend it on the ground of its perfect admixture, the ease with which it is assimilated, the good quality of the Cod-Liver Oil, and the value in diastase of the 'Maltine.'" —*British Medical Journal.*



In prescribing "Maltine" preparations, to avoid mistakes or substitution, kindly specify "MALTINE COMPANY."

Samples sent free of Charge to Physicians.

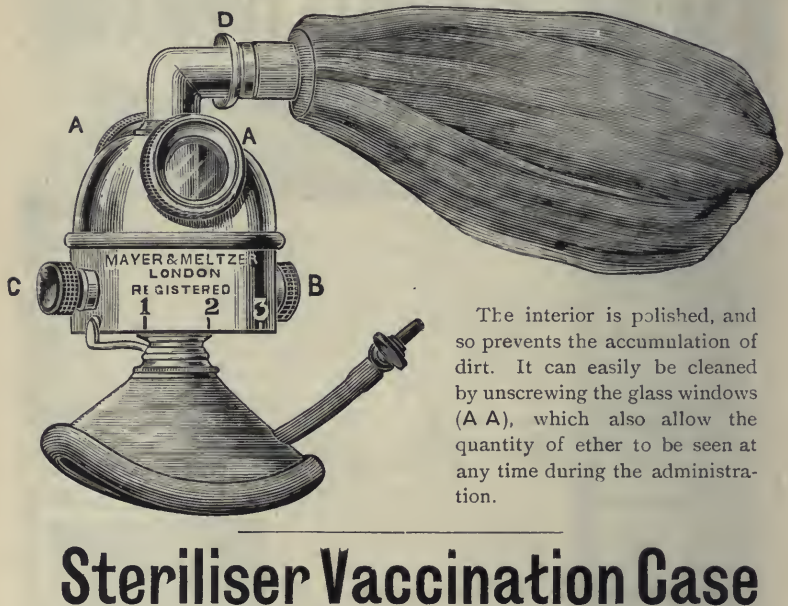
The Maltine Manufacturing Co Ld.

24&25. HART ST. BLOOMSBURY. LONDON. W.C.

Aseptic Clover's Inhaler.

Designed by Dr. WILSON SMITH (Bath).

MAYER & MELTZER'S PATENT.



The interior is polished, and so prevents the accumulation of dirt. It can easily be cleaned by unscrewing the glass windows (A A), which also allow the quantity of ether to be seen at any time during the administration.

Steriliser Vaccination Case

TO MEET THE REQUIREMENTS OF THE

NEW VACCINATION ORDER.

Full particulars of the above may be had from the Sole Manufacturers:

MAYER & MELTZER,

Surgical Instrument Makers

To University College Hospital, Hospital for Women, Hospital for Diseases of the Throat, etc., etc.,

71, GREAT PORTLAND STREET, LONDON, W.

Branches—MELBOURNE and CAPE TOWN.

Telegraphic Address—"Trephine, London." *Telephone*—No. 5574 Gerrard.

"The Prototype of all Bitter Waters."—*Lancet* (1896).

Hunyadi János

Over 1,000 Testimonials from Medical Authorities.

THE LANCET.

"Hunyadi János."—"Baron Liebig affirms that its richness in aperient salts surpasses that of all other known waters." (1873.)

BRITISH MEDICAL JOURNAL.

"Hunyadi János has established itself in favour with leading physicians and therapeutists of every country, whose testimonies bear witness to its action as a speedy, sure, and gentle aperient for ordinary use; it is remarkably and exceptionally uniform in its composition." (August 30, 1884.)

"Hunyadi János sprang rapidly into great and widespread reputation owing to its speedy, sure, and gentle action. It apparently continues to hold the ground which it so quickly and effectually secured." (August 23, 1890.)

Annual Sale exceeds 6,000,000 Bottles.

HUNYADI JÁNOS

25 Years' Success in the United Kingdom.

THE PRACTITIONER.

"This product of Nature's Pharmacy has for many years held a place in the very front rank of natural saline waters."

"We have found that in the treatment of constipation, from whatever cause arising, Hunyadi János fulfils the requirements of an efficient remedy, in that it acts *cito, tuto et jucunde.*" (May, 1896.)

MEDICAL PRESS AND CIRCULAR.

"Hunyadi János is certainly the best known, and, in our experience, the most trustworthy of the Hungarian laxative mineral waters. Taken in the morning, either pure or diluted with hot or cold water, it produces a copious evacuation without leaving behind it any intestinal discomfort or exhaustion." (Feb. 5, 1896.)

CAUTION.—Every Bottle bears the Signature of the Proprietor,

Andreas Saxlehner.

PURVEYORS TO H.R.H. THE PRINCE OF WALES.

ICH DIEN.

BRAND & Co.'S MEAT JUICE.

Prepared from the finest ENGLISH MEAT.

"This is a powerful, nourishing, and stimulating fluid, obtained from prime beef by submitting it to pressure in the cold—a method of preparation which must be regarded as highly satisfactory, for, according to our analysis, the valuable principles of the meat have not only been preserved intact, but the fresh, agreeable, and natural flavour of beef has also been retained."—*Lancet*, January 7th, 1893.

Supplied to Her Imperial Majesty the EMPRESS of RUSSIA.

PRICE **2/6** per bottle.

CAUTION. **Beware of Imitations. Each genuine article bears the Original Firm's Signature and Address:—**

Brand & Company

Price Lists of Invalid Preparations free on application to—

BRAND & Co., Ltd.,

11, LITTLE STANHOPE ST., MAYFAIR, LONDON, W.

The Safeguard against Bad Drinking Water.

STILL.

NATURAL

Malvern Water

The "ALPHA BRAND,"

FROM THE

Historic Spring

IN THE POSSESSION OF

W. & J. BURROW.

SPARKLING.

The Purest of all Natural Table Waters.

THE attention of the Medical Profession is invited to the above pure Table Water, and also to the Mineral Waters—Soda, Potash, Seltzer, and Lithia Waters—prepared with it. Burrow's Malvern **Lithia** Water is of acknowledged excellence, and should be prescribed as "Burrows" when ordering it for Gouty Patients, to ensure obtaining the genuine. It will be found of very superior efficacy.

Any of the above Waters can be obtained in Cases, Carriage Paid, by ordering from—

W. & J. BURROW,

THE SPRINGS, MALVERN.

TELEGRAMS: "SPRINGS, MALVERN."

BATTLEY'S SOLUTION OF OPIUM.

LIQUOR OPII SEDATIVUS (BATTLEY).

Strength—Twice that of Tinctura Opii B.P.

Battley's Solution of Opium may be given with the greatest of safety in those cases where an opiate is required or indicated, and from its great purity, absence of all hurtful matter, such as narceine and resinous bodies, is admissible when all other preparations would prove hurtful.

Liquor Opii Sedativus (Battley) having now existed for nearly 100 years, and after being opposed by vain and worthless opponents has upheld its old position as "Second to None" in the Hypnotic World.

Battley's Solution of Opium has none of the disagreeable after-effects that most soporifics and hypnotics have, no nauseating or depressing influences with racking headaches, etc., but exercises a quieting and benign sway over the patient, giving him or her a refreshing sleep with freedom from pain. The last few years it has come to the front in cases of Cancer and Sarcoma, having been used widely both in private and hospital practice with great ease and comfort in these instances.

Battley's Solution of Opium never varies in strength.

Battley's Solution of Opium does not leave behind it any unpleasant effects.

Battley's Solution of Opium is now in use throughout the United Kingdom; throughout the Continent (France excepted); the Colonies, and largely in America, both South and North; and we ask all those who have not tried Battley's Solution of Opium to send for Samples (Free).

The "Medical Annual," speaking of Opium says: **"Battley's Solution of Opium** is a common word in the Practitioner's vocabulary. It has gained its reputation by its intrinsic value as a remedy which contains all that is sedative and anodyne in opium without its resinous constituents which are, therapeutically speaking, impurities."

The "Lancet," speaking of Opium, says: "New Hypnotics come and go each with hopeful forecast of being superior to those already known, each in turn aspiring to give **peaceful refreshing sleep,** which shall be followed by no **unpleasant after-effects;** and yet, in the minds of many thoughtful practitioners, opium and its preparations still maintain their ground." We would point out to the Medical Profession that Battley's Solution of Opium has for the past eighty years answered these **three** most important requirements, and stands out above all other hypnotics in excellence.

LIQUOR OPII SEDATIVUS.

The striking appearance resulting from the evaporation of Battley's Sedative (*Plate III. fig.* 1) first drew our attention to the mode of investigation now described. We have examined it frequently, and always have met with the same characters. The slides present an almost opaque mass of crystals of morphine salts and codeine, with a very small portion of narcotine (and meconic acid ?), and so far as we have observed, complete absence of resinous matter and narceine. **Any one who has studied the microscopic characters of this preparation will readily understand how it has kept its place with the Profession in spite of the cheap imitations which have been so largely puffed as substitutes for it.** Though we have experimented much with a view to preparing a similar liquor, we have not yet arrived at an identical result.

We do not guarantee our Preparations unless in original bottles, with the autograph of RICHARD BATTLEY over each cork and on the label, *without which none is genuine.*

A few Facts in favour of
Scott's Emulsion.

Patients readily take and retain Scott's Emulsion when their stomachs and palates rebel against the plain cod-liver oil. A minute and uniform division of the oil is unquestionably an advantage, both in digestion and absorption. And in Scott's Emulsion this division is MAINTAINED INDEFINITELY, and the oil REMAINS FREE FROM RANCIDITY.

Glycerine is an important factor in Scott's Emulsion also, and should not be lost sight of. In the digestion of fat Nature makes glycerine; makes it for a purpose and uses it, thus showing the need of it. We add glycerine especially because it prevents fermentation, because it sweetens without aggravating uricacidæmia or glycosuria as sugar does, and because it assists absorption and aids nutrition. We owe much to the glycerine.

To the Hypophosphites of Lime and Soda we look for a necessary constituent of brain, nerve, and bone structure.

Is not the above combination better than plain cod-liver oil? And is it not a further advantage that the physician can absolutely rely upon Scott's Emulsion as being a PERMANENT EMULSION, FREE FROM RANCIDITY?

SCOTT & BOWNE, Ltd., Manufacturing Chemists, LONDON, E.C.

Invalid Bovril,

like ordinary Bovril, contains the actual substance of the primest lean ox beef, in the finest possible state of division, but in a more concentrated form. It is especially prepared for use in the sick room, and contains no seasoning. It is perfect beef tea plus the ALBUMIN and FIBRINE of Beef in the form best suited to the enfeebled powers of digestion and assimilation, thus providing the nourishment necessary to the renewal of strength and vitality.

Virol

is an ideal strengthening food for infants, growing children, invalids, and others. It enriches the blood, and supplies all the elements for growth and nutrition, being composed of finest Extract of Malt, Red Bone Marrow, and Fresh Eggs. It is extremely palatable, and may be used with advantage in place of nauseating mixtures of Cod Liver Oil.

OTHER PREPARATIONS.

BOVRIL WINE
BOVRIL LOZENGES
BOVRIL MEAT JUICE
BOVRIL BISCUITS
BEEF JELLY
LIEBIG'S EXTRACT OF BEEF
VIROL (A fat food for Children and Invalids)
VIROL SANS SUCRE (for diabetic patients)
MARROL (A fat food for adults)
MALTO-CARNIS ("Caffyn's")
LIQUOR CARNIS ("Caffyn's") (Raw Meat Juice)
BOVRIL STAMNOIDS (A "food by the way")
BOVRIL CHOCOLATE
BOVRIL COCOA
KUDOS COCOA ESSENCE
HORSFORD'S ACID PHOSPHATE

BOVRIL Limited, LONDON.

Food Specialists and Hospital Purveyors, & Contractors to Her Majesty's & Foreign Governments.

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Analyst: WILLIAM HARKNESS, F.I.C., F.C.S., F.R.M.S., 40 years Food Analyst to H.M. Government.

GAUTIER FRÈRES'
FINE OLD
LIQUEUR BRANDY.

(GUARANTEED 20 YEARS OLD.)

Extract from THE LANCET, 14th August, 1897.—"The product before us, being a genuine grape spirit and possessing those estimable characters in regard to aroma and flavour of real Cognac Brandy, is peculiarly well adapted for medicinal purposes."

Extract from THE HOSPITAL, 14th August, 1897.—"It is a brandy highly suitable for general use or for medicinal purposes when a liqueur brandy is desirable."

Apply to **BROWN, GORE & Co.** (*Wholesale Agents only*)
22 & 23, Gt. Tower St., E.C. *for name of nearest Dealer.*

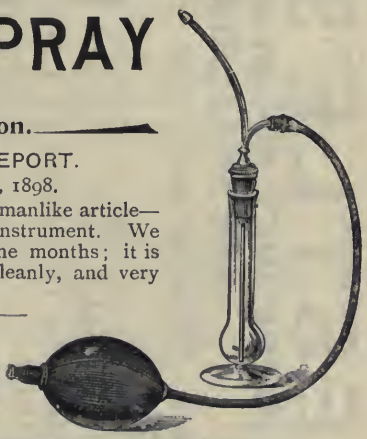
ROGERS' SPRAY

For Nose or Throat without alteration.

LATEST MEDICAL REPORT.

THE PRACTITIONER, *May*, 1898.

"ROGERS' SPRAY is a really workmanlike article—a thoroughly well-made medical instrument. We have had one in daily use for some months; it is never out of order; it is simple, cleanly, and very moderate in price."



Designed by and Manufactured Solely for

FRANK A. ROGERS

(Successor and Late Manager to CORBYN & CO.),

327, OXFORD ST., LONDON, W. (CORNER OF BOND STREET.)

Sole Maker and Introducer of "***Hypodermules***" sterilised doses for Hypodermic Medication. Write for List.

NESTLÉ'S FOOD

An ENTIRE DIET for INFANTS, CHILDREN AND INVALIDS.

"Renders valuable assistance in Wasting Fever."

"Beneficial as a diet in severe cases of Typhoid."

"Invaluable in Cholera Infantum."

Pamphlet containing Extracts from Standard Medical Works in which the above Testimony is given sent free, with Sample Tin, on application to H. NESTLÉ, 48, Cannon Street, London, E.C.

The attention of the Medical Profession is also drawn to

NESTLÉ'S SWISS (CONDENSED) MILK

Which, through its RICHNESS in CREAM and UNIFORMITY of QUALITY, has obtained the Largest Sale in Great Britain. It can be used for all purposes of FRESH MILK.

Samples to Members of the Medical Profession only sent free on application to H. NESTLÉ, 48, Cannon St., London, E.C.

Ergot Aseptic,

(P., D. & CO.)

An Ideal Preparation of Ergot for Hypodermic Administration.

Extractive matter is inert and causes abscesses. Ergotinic acid is a nerve depressant and irritant. Aside from being entirely free from both extractive matter and ergotinic acid, ERGOT ASEPTIC IS

Physiologically Tested, Standardized and Sterilized.

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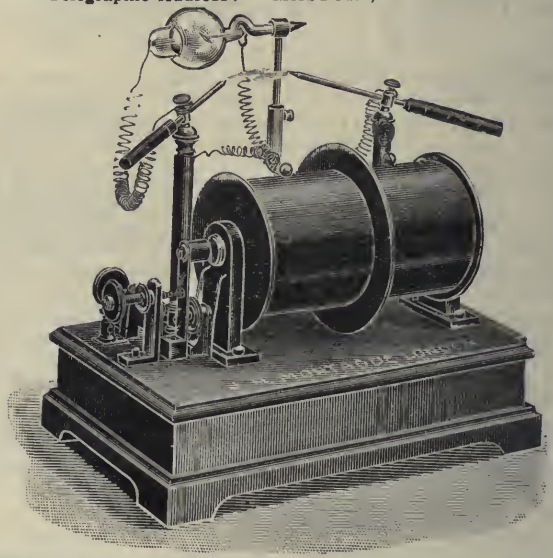

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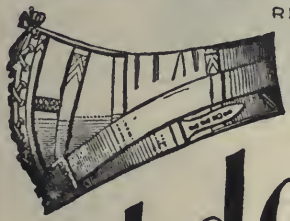

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Ergotinine Citrate	gr. 1/100
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" "	gr. *1
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Atropine Sulphate	gr. 1/70
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" "	gr. *1
Morphine Sulphate	gr. 1/8 . 1/6 . 1/4 . 1/3
Atropine Sulphate	gr. 1/200 . 1/180 . 1/150 . 1/120
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Nitroglycerin (Trinitrin)	gr. 1/250
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Picrotoxin	gr. 1/60
Pilocarpine Nitrate	gr. 1/10, 1/6 and *1/3
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Potassium Permanganate	gr. *2
Quinine Bihydrochloride	gr. *1
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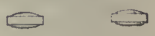

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'TABLOID' Effervescent Artificial Mineral Water Salts contain in small bulk the essential constituents of the natural waters whose names they bear. By prescribing them in conjunction with a suitable dietary, the physician is enabled to adopt the treatment carried out at British and Continental spas, and his patients have the advantage of being constantly under the care of their own medical adviser.

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TRADE MARK 'Tabloid' BRAND

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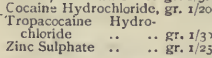

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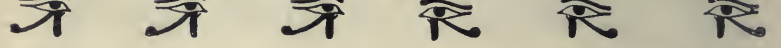

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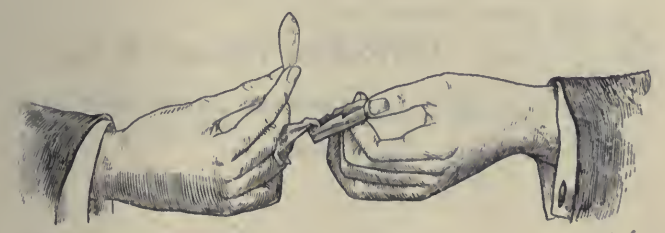

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PREFACE.

THE contributions contained in this, our seventeenth annual issue, show that a very large amount of practical work has been done in almost every department of medicine and surgery during the past year.

It is only by a process of repeated condensation and pruning, for which we feel an apology is due to our contributors, that we are able to retain the book within dimensions, which are already considered by some to be fully large for a work of handy reference. While our attention has thus been devoted to compressing the articles, the publishers have, at some expense, reduced the thickness of the paper upon which they are printed, so that a certain amount of bulk is this year saved in response to the wishes of subscribers without, it is hoped, sacrificing anything in the appearance or usefulness of the volume.

We believe that, both in the literary matter and the number of illustrations, this year's issue will bear comparison with any of its predecessors. It is the united work of members of the medical profession in all parts of the world, whose common aim has been that no gap shall be left and no overlapping occur—admittedly a task of no small difficulty.

The support we have received from our contributors, and the kindness always shown by readers and reviewers, have lightened the labour of the past seventeen years, and will encourage us to further efforts to add to the value of future issues.

The "Medical Annual" Offices,
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THE MEDICAL ANNUAL.

PART I.—THERAPEUTICS.

The Dictionary of New Remedies,

AND REVIEW OF THERAPEUTIC PROGRESS FOR 1898.

By WILLIAM MURRELL, M.D., F.R.C.P.,

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INTRODUCTORY.

ONE of the chief events of the year has been the publication of a new British Pharmacopœia which has been produced under the auspices of an official Editor who has been assisted in his labours by certain referees in chemistry, botany, pharmacology, and therapeutics. The general supervision of the preparation of the work has been entrusted to a small committee, so that there has been no lack of skilled assistance.

There seems to have been a general opinion that in the new Pharmacopœia the use of the metric system would be authoritatively enjoined, but no such drastic measure has been adopted, and the prescriber is still at liberty to write his prescriptions in grains or in grammes as may seem to him best. The grain weight has been in use from a very remote period, and although the absence in the present system of any denomination of weight between the grain and the avoirdupois ounce of 437·5 grains, and the fact that the ounce is not a simple multiple of the grain are grave defects, it has not been thought desirable to make any change in this respect.

The list of drugs and preparations omitted from the present Pharmacopœia is a long one.

Aconite leaves have been struck out, but as we still have the root they are no great loss. Extract of aconite was a bad and uncertain preparation, and was rarely employed.

The citrate of bismuth and the citrate of bismuth and ammonium have succumbed to the opposition of the carbonate and the subnitrate.

The exclusion of prepared calamine will be a loss to the skin specialists, by whom it was largely used as a basis of many face washes and lotions.

The poultices have suffered severely, and the charcoal poultice, linseed poultice, and mustard poultice are no longer official.

There is now only one form of charcoal, animal charcoal and purified animal charcoal having been excluded. Sarsaparilla has fallen on bad times, for the decoctum sarsæ and the decoctum sarsæ compositum are no more, although there is a new concentrated compound solution.

The squirting cucumber will no longer stimulate our intestines, for the ecballii fructus appears in the condemned list with elm, manna, honey, mulberry, kamala, treacle, lettuce, and a number of other drugs of doubtful reputation.

Physostigmine, or eserine, has been cut out, but as its place is taken by the sulphate of physostigmine we are gainers by the exchange.

Turning now to the list of additions we find the names of drugs which for many years have been extensively employed, and have long since earned for themselves an established reputation.

Cocaine is now, for the first time, rendered official, although the hydrochlorate of cocaine was recognised in the Pharmacopœia of 1885.

The hydrobromide of hyoscine is a useful addition to our lists of remedies, and the term scopolamine hydrobromide is used as a synonym.

The introduction of dry thyroid and of the liquor thyroidei mark a new and welcome departure, whilst we have another preparation of animal origin in the liquor pancreatis.

Pure terebene has at last received recognition under the name terebenum or terebene, a designation which may present some difficulty in connection with a certain patent disinfectant preparation.

The list of flavouring agents has been strengthened by the addition of the syrup of Virginian prune, a small concession for which we are duly grateful.

The necessity for giving a formula for the preparation of concentrated decoctions and infusions has long been recognised. They are in constant use and have almost superseded the old-fashioned infusions. Nine of these preparations have been admitted into the new Pharmacopœia under the name of *liquores concentrati*, and as examples we mention the liquor calumbæ concentratus, the liquor quassiæ concentratus, and the liquor sarsæ compositus concentratus.

The diluted liquores differ in minor respects from freshly prepared decoctions or infusions, and contain a small quantity of alcohol.

Some of the official remedies have been altered, as regards their preparations, almost beyond recognition. Take iodine, for example, of which there used to be five preparations—the liniment, the liquor, the tincture, the ointment, and the vapour—the last-named being prepared from the tincture. The vapour has been omitted, the liquor has been relegated to one of the appendices, and the liniment is now known as the liquor iodi fortis. We can not complain of these changes, for the vapour was always prepared extemporaneously, and was not dispensed in the usual way ; whilst the liniment was a liniment only in name.

A large number of preparations have been altered in strength, a circumstance, which for a time at all events, will give rise to a certain amount of confusion. The injectio morphinæ hypodermica now contains 5 grains of morphine tartrate in 110 minims—that is to say, the morphine strength of this injection is less than one half that of the hypodermic injection of morphine of the 1885 Pharmacopœia.

The injectio apomorphine hypodermica now contains 1 grain of the hydrochloride in 110-minims, and apparently there is no preparation of this drug especially adapted for administration by mouth, although the dose is given as from $\frac{1}{10}$ to $\frac{1}{4}$ grain.

The index gives a great deal of information respecting the composition of various preparations, although it is not always easy to find from it the proportion of active principles which they contain. In another respect this index is deficient, for it is difficult to ascertain, for example, what iodides are official. In the index to the 1885 Pharmacopœia this could be seen at a glance, but the present index gives us no information on this point, and the prescriber finds himself involved in a roving commission which necessitates looking up the subject under the head of various likely bases. In connection with this subject it may be mentioned that the iodide and bromide of strontium, of which we heard so much a few years ago, have not found acceptance.

One of the greatest improvements in the new Pharmacopœia is that it has been found possible by a little alteration in their composition to arrive at something like uniformity in the matter of doses of many preparations.

All the tinctures with the single exception of tincture of iodine have a dose of either from 5 to 15 minims, or from $\frac{1}{2}$ a drachm to 1 drachm. Curiously enough the maximum dose of tincture of iodine is given as 5 minims, although the majority of prescribers use it in 10-minim doses.

The Pharmacopœia takes cognizance for the first time of the custom adopted by many therapeutists of giving drugs in small and frequently repeated doses. For example, the dose of tincture of aconite is fixed at from 5 to 15 minims, but if very frequently repeated from 2 to 5 minims. These doses are even now unnecessarily large, although it is fair to point out that this tincture is made with $\frac{2}{5}$ of the proportion of aconite root ordered in the 1885 Pharmacopœia.

It was thought that an opportunity would have been taken to describe in the Pharmacopœia some of the many pharmaceutical devices which have been introduced in recent years for the more easy administration of medicines, but this has not been done. We are told that "when so directed by the practitioner, the drugs of the Pharmacopœia may be dispensed in such non-official forms as capsules, cachets, granules and the like," a fact which, if we may say so without disrespect, we knew before. There are no less than eleven appendices to the present work, of which that giving "alternative preparations sanctioned for use in India and the Colonies," and that devoted to the composition of "bases for lozenges," are among the most useful.

In a number of matters of detail improvements have been introduced, and there is no doubt that the British Pharmacopœia is now a much more useful work than it has ever been before. At one time there seemed to be a danger of its being entirely ousted by manuals of a similar character, but more conveniently arranged—published by private enterprise. There is no reason why in time the British Pharmacopœia should not become popular with prescribers, especially if steps were taken by periodical revisions to bring it up to date. If some of the older members could be induced to retire from the Committee appointed by the General Medical Council, and if the preparation of the next Pharmacopœia were entrusted to their able and energetic secretary, assisted perhaps by well-known scientists acting as referees in their own special departments, we should have no fear for the future.

A national work such as the "British Pharmacopœia" should not be allowed to stagnate. For years it has been under a cloud, but at last there are indications that its control is in firmer hands, and that the history of the past will not be repeated.

Prof. Fraser,[1] in the Address on Medicine, at the Annual Meeting of the British Medical Association at Edinburgh, gives a wide, practical application to the results obtained by him in his researches on **Serpent Venom** (which see).

He points out that in the case of ordinary poisons it has been well established that recovery is largely promoted by hastening the

removal of the poison from the body, especially by means which it is the province of pharmacology to indicate; and the eliminative treatment which has long been followed in many diseases thus finds in their now definitely established toxic origin a sufficient explanation and justification. Clinical and experimental evidence, not restricted to ordinary poisons, but gained also from the study of the effects of toxins and venoms, has taught us that treatment should also include the adoption of measures for increasing the resistance afforded by the body to toxic and morbific processes. If a dose of venom below the minimum lethal be administered to an animal, and, after all obvious symptoms of poisoning have disappeared, this dose be followed by a second, also considerably below the minimum lethal, the animal may die, although each dose was in itself insufficiently large to cause death. If an animal has been inoculated by a non-lethal quantity of the virus of a recognised disease such as anthrax, and, after recovery has apparently been established, if a non-lethal dose of the virus of another disease be inoculated, death will follow the inoculation of the second dose, although that dose is quite insufficient of itself to produce death in an animal which has not previously been thus treated. In both cases the power of resistance has been so weakened by the first and apparently recovered-from administration that a quantity of virus in itself insufficient to cause death, now succeeds in doing so. From such examples the explanation is found of the widely prevalent employment of means to increase the strength or resistance of a patient, of the value of tonics and foods and of fresh air and light, not only in promoting recovery from illness, but also in actually preventing a fatal termination. Expressed in another form, they constitute means for slightly increasing for any given degree of disease the minimum quantity of the disease-producing influence or substance required to produce that degree of disease.

These as well as other methods of treatment that might be referred to do not, however, directly affect the true cause of the malady. Hitherto this cause could be counteracted or opposed only in the instances of the well-known poisons which are dealt with by toxicology, and of a very few diseases such as ague and syphilis, in which the cause was surmised, without being proved, to be a poisonous substance; and in substances fitted to antagonise these poisons by chemical combination, or, though only to a limited extent, to counteract their effects by physiological processes, therapeutics has possessed satisfactory resources. By the demonstration of the production of many diseases by toxins generated by micro-organisms, the opportunities for the application of these principles has been greatly

extended. Diseases whose treatment had previously rested on an uncertain basis have now been brought into the range of rational therapeutics; and it has been shown that morbific processes which had already become so definitely established as to display serious symptoms can be entirely arrested, and, above all, that illnesses which would otherwise inevitably terminate in death may be so perfectly controlled that the fatal termination can be prevented and recovery ensured.

A dose considerably above the minimum lethal of the toxin of tetanus is administered to an animal. Several hours after the administration, when symptoms of tetanus have manifested themselves, the antitoxin of tetanus, derived from an animal which had been immunised against the virus, is injected under the skin, and in a short time afterwards the symptoms of the disease disappear and the animal recovers.

A dose of cobra venom sufficient to cause death in two or three hours is administered to an animal; the venom illness is developed, and while it is quickly advancing to apparently an early death, a dose of antivenin—the blood serum of an animal highly immunised against the venom—is administered, and by-and-by the symptoms become mitigated, and in a few hours the animal, which otherwise would certainly have died, is restored to a perfectly normal condition.

By this antidotal treatment, further, not only is disease arrested and even death conquered, but the structural alterations in the muscle fibre and elsewhere that the tetanus toxin produces, and also the acute and rapid changes in the parenchyma of the kidney, characterising the poisonous action of serpent's venom, are altogether prevented from occurring.

As bearing on this subject, it may be pointed out that Calmette and Delarde[2] have investigated the natural and acquired antitoxic properties of **Blood Serum** from various animals, taking the reaction to doses of abrin as the most frequent criterion.

They arrived at the following conclusions:—

(1,) The serum of animals naturally refractory to such toxins as they have investigated rarely possesses antitoxic properties with regard to those toxins. Thus, while fowls and tortoises resist very considerable doses of abrin, their serum is totally inactive with regard to abrin. Vaillard has proved that the fowl, although refractory to tetanus, gives a serum which is without action on tetanotoxin. Even when the serum of refractory animals is antitoxic, as in the case of the ichneumon and the hedgehog with respect to serpents' venom, the antitoxic power is always feeble, and by no means in

proportion to the degree of immunity. There is thus no relation between the natural refractory condition of certain animals and the antitoxic power of their serums in respect of the toxins by which they are unaffected.

(2,) While warm-blooded refractory animals can produce antitoxins under the influence of repeated non-fatal injections of toxins, cold-blooded refractory animals produce none under the same conditions.

(3,) Cold-blooded refractory animals, such as the frog, can acquire immunity against fatal doses of toxin without their serum becoming antitoxic.

(4,) Antiabric and antivenomous serums can be used practically for the production of passive immunity in man and animals, and also for the diagnosis of the toxins which they oppose. The former has a very marked preventive action when applied to mucous surfaces, and hence may be turned to account in ophthalmology.

(5,) The active substance of antitoxic serums is not modified by certain chemical reagents, which destroy or profoundly alter the toxins. It does not alter toxins when mixed with them *in vitro*.

(6,) Certain substances having no specific action on toxins, such as bouillon, normal ox serum, or the serums of certain animals vaccinated against various infections or intoxications can, when injected into fresh animals, act preventively as regards other infections or intoxications. Hence immunity, natural or acquired, cannot be due to the presence in the serum of a chemical substance having the power of destroying or modifying the toxins. The existence of a preventive substance in the serum of vaccinated animals remains yet to be proved ; the authors' experiments suggest that the preventive power may after all be a physical and not a chemical phenomenon. They have shown that the antitoxic function is independent of immunity, since the latter can exist in the absence of the former; further, that both natural and acquired immunity result from a special property of the cells. When these conditions change under diverse external influences, such as the tolerance of certain poisons, the functional state of the cells is modified at the same time.

Dr. Affleck,[3] in a Presidential Address, delivered in the Section of Pharmacology and Therapeutics, at the Meeting of the British Medical Association at Edinburgh, gave a useful summary of the Progress of Therapeutics during the last thirty years.

After speaking of stomach lavage, and the progress of antiseptic surgery, he spoke of **Massage** as a therapeutic agent which has been found to be a valuable adjuvant in the treatment of various forms of

paralysis, particularly those of peripheral origin; in many functional disorders of the nervous system; in the disabling sequelæ of rheumatism; in certain varieties of dyspepsia; in insomnia, and in the debility of convalescence.

The amount of aid to be obtained from **Electricity** as a therapeutic measure is not to be gauged by the comparatively limited extent of the results hitherto obtained by its use. Its more recent developments seem to promise for it a wider sphere of useful action as a means of treatment.

The employment of various forms of **Baths** in the treatment of disease has until recent times held a much less prominent position in this country than on the Continent. But their value is now gaining much wider and more practical recognition, and some of our large hospitals are providing the means for establishing a separate department for the systematic application of this important therapeutic agency.

The power of **Suggestion** as a factor in therapeutics has gained wide recognition in recent times. The numerous directions in which it may be exercised are necessarily better realised by some practitioners than by others. But there is one manifestation of it which applies to the case of all—that is, the personality and moral influence of the physician in his relations to his patient. It may indeed be difficult or impossible to appraise the absolute therapeutic value of the output of his sympathy and the tone which may be imparted to his ministrations. But when these are dictated by the highest motives which can inspire a life, they are laden with true healing virtue to the sufferer, they tend to exalt the physician's office in the estimation of mankind, and they cannot fail of their reward.

The **Open-air Treatment** of phthisis in specially-constructed sanatoria has recently awakened widespread interest. This method, which seems to rest upon a scientific and rational basis, is still only on its trial, yet results of an encouraging kind have already been obtained.

Of no less importance, and with a still wider range of beneficent result, are the means which bacteriological investigation has placed within our power of identifying specific organisms in infectious diseases and observing their life-history and toxic properties. The way has thus been opened for the scientific study of immunity, and this again has resulted in the discovery of protective and curative **Antitoxins,** of which that of diphtheria is the most outstanding example. The testimony which has been borne to the value of this treatment in that dreaded malady has been universal. Others of the

deadly scourges of humanity are now also being effectively combated by serumtherapeutics. For this work, Dr. Affleck points out, we are indebted to the Pasteur Institute, where also the antirabic treatment of hydrophobia was discovered by its famous founder.

Apart from researches on toxins and serums, very little pharmacological work has been done in Great Britain during the last year. Pharmacology is temporarily under a cloud, and we may have to wait for some years for a revival in this industry. Many drugs recently introduced, the mescal button, for example, have not sustained their reputation, or have not been found to be of any practical service as therapeutic agents, and have already fallen into well-deserved oblivion.

Almost every day sees the introduction of some new substitute for iodoform. There are so many that it is difficult to know which to select. Undoubtedly many of them are free from toxic properties, but the therapeutic value is not so well assured. (See "Iodoform Substitutes.")

Of the substitutes for cocaine for ophthalmic purposes there are many candidates for popular favour. (See "Eucaine," "Holocaine," and "Mydrin.")

Scopolamine[4] is still extensively employed, and in ophthalmic practice has many advantages over atropine. (See "Belladonna.")

REFERENCES.—[1] "Brit. Med. Journ.," July 30, 1898; [2] "Ann. de l'Institut Pasteur," x. 12; [3] "Brit. Med. Journ.," July 30, 1898; [4] "Med. Ann.," 1897, p. 66; 1898, p. 58.

ACONITE.

Our knowledge of the action of aconite is derived partly from observations made on the frog's heart, and partly from experiments made on the mammalian circulation by the manometric method.

S. A. Matthews,[1] has made observations on the mammalian heart, with the myocardiograph. The heart in the frog, under the influence of aconite, becomes first quickened and then slowed, but shortly before death it at times beats with increased rapidity. The slowing of the pulse has long been attributed to the action of aconite on the vagus roots. The experiments of the author on the action of aconite on the dog's heart lead him to the conclusion that it consists in: (1,) A stimulation of the inhibitory mechanism, especially of the centres, in the medulla oblongata; (2,) An increase in the irritability of the muscle of the auricle and the ventricle, which leads to independent contractions of one or both of these divisions, and culminates in fibrillary contractions in the ventricle.

The first is the only effect seen from the therapeutic use of the drug,

and Matthews considers that aconite is indicated when it is desirable to stimulate the inhibitory centre without acting on the heart muscle. The effect which it produces on the circulation, by stimulation of the vasomotor centre, is of minor importance.

REFERENCES.—[1] "Journ. of Exper. Med.," vol. ii., No. 5, 1897; "Med. Chron.," Jan., 1898.

AIROL.

Fritz Semmer,[1] reports a case of poisoning from the use of this drug. About an ounce of a 10 per cent. emulsion, made with equal parts of glycerin and olive oil, was injected into a **Psoas Abscess,** after removal of its contents, resulting from tuberculous spondylitis. Severe burning pain was experienced shortly after the operation, which latter was followed by headache and coryza, such as has been observed to follow the administration of iodine. These symptoms disappeared after making use of sodium bicarbonate. Three days later there was observed a swelling of both lips and severe *fœtor ex ore.* For the past twenty-four hours there had been burning pain in lips and gums, so that swallowing caused severe pain. Headache, malaise, inappetence, and nausea were also present; the movements were somewhat constipated, the temperature afebrile. The gum-margins showed a bluish-gray discolouration, and the hard palate about the teeth was bluish, the throat was slightly reddened, the border of the tongue bluish, while the tongue itself was heavily coated. The buccal mucous membrane was marked by dark blue lines and showed the impress of the teeth. The mucous membrane of the lower lip was covered with similar spots, in the centre of which were small, coated ulcers. Pressure upon the teeth caused pain. The submaxillary glands were slightly swollen and sensitive. The urine was dark in colour, contained a white sediment of urates, but was free from albumin. The ulcers healed under the use of potassium chlorate, although the discolouration persisted more than four weeks. Eight days from the last the symptoms required another emptying of the abscess. When this was done the cavity was found to contain some of the airol emulsion, which, being removed, was followed by a rapid disappearance of the symptoms and a clearing up of the urine. The explanation of these symptoms is to be found, the author thinks, in the fact that bismuth is soluble in glycerin. (See "Iodoform Substitutes.")

REFERENCE.—[1] "Corresp.-Blatt f. schweiz. Aerzte," No. 16, 1897.

ALCOHOL.

Goenner[1] has made numerous experiments with the view of determining the value of alcohol for practical use as an antiseptic and disinfectant.

In the first series of experiments, cultures of various organisms (bacillus pyocyaneus, staphylococcus pyogenes, streptococcus pyogenes, etc.) were exposed to the influence of alcohol for varying intervals of five to ten minutes. The results showed that although a marked inhibitory effect on the growth was produced, increasing with the length of exposure, the cultures were not destroyed, and remained capable of again manifesting active growth.

In a second series of experiments the hands were cleansed, as before an operation, in various ways. A portion of the skin from under the nail was then removed, and cultures, together with inoculations into animals, were made.

The results showed that as a germicide alcohol is far inferior to perchloride of mercury. The streptococci, especially from virulent cultures, and the spores of other bacteria, are not destroyed. Staphylococci and bacillus pyocyaneus are killed by the use of alcohol.

Norman Kerr,[2] calls attention to the increasing peril from the rapid expansion of the traffic in proprietary "remedies" containing alcohol, morphine, cocaine, and other poisonous drugs without the purchaser having the slightest suspicion of the presence of any narcotic poison.

Not long ago he found a distinguished ecclesiastical dignitary, the sworn foe of alcohol and its congeners, giving his young child a generous daily allowance of a wine containing not only alcohol in substantial proportion, but, in addition, an active poison.

In several instances the distressing phenomena of addiction to alcohol and other narcotic inebriants, have been initiated by the use of so-called "cures," the drinkers, all unconscious of danger, having gradually glided under the dominion of the drug.

Not a few persons who, recognising the peril of an increasing tendency to excess have resorted to "wines" or other proprietary preparations containing alcohol or other similar drugs, have resorted to the alleged curative and restorative liquids only to bind their narcotising chains more closely around them.

In one such medicated "wine" analysis revealed 25 per cent. of alcohol, an intoxicating drink more alcoholically strong than a large proportion of the ordinary intoxicant beverages consumed by the general population.

It is the province of the medical profession to bring pressure to bear upon the legislature, for the adoption of such legislation as will secure the open disclosure on the labels of all alcoholic intoxicating drinks and drug preparations, which are not otherwise recognisable as intoxicating.

These observations apply with equal force to morphine, opium, cocaine, and other inebriants.

REFERENCES.—[1] "Centralbl. für Gynäk.," No. 18, 1898; "Med. Chron.," July, 1898; [2] "Med. Press and Circ.," Aug. 24, 1898.

ANÆSTHETICS.

Dr. Frederic W. Hewitt,[1] dealing with certain points in the selection and use of anæsthetics for surgical operations, points out that in hot climates, experience goes to show that chloroform anæsthesia is safer than it is elsewhere; so that even though the chloroform death-rate may be very considerable in England, we must not assume that it will be equally high in other countries. The use of chloroform, indeed, seems to be far less likely to be attended by accident in tropical than in more temperate climates.

It is fortunate that this is so, seeing that the use of ether in high temperatures is a matter of difficulty or impossibility. There is yet another point to be borne in mind in discussing the choice of anæsthetics. We must take into account the general circumstances under which the operation is undertaken. Whilst we may hold very strong views as to the best lines of procedure in a well-appointed operating theatre, it is obviously ridiculous to expect the country practitioner, already labouring under great disadvantages as to assistance, appliances, etc., to work upon such lines. All we can say is, that speaking in the most general terms, ether is safer than chloroform, and for this reason should be used whenever circumstances permit.

Wood and Carter [2] publish the results of a research on anæsthetics, and arrive at the following conclusions :—

(1,) Lowered arterial pressure has a comparatively feeble effect upon the respiration, but when the pressure falls sufficiently, respiratory depression does occur.

(2,) Even excessive lowering of blood pressure primarily stimulates the vaso-motor centre, the sensibility of the centre being evidently necessary to the automatic regulation of the circulation.

(3,) The circulation recovers itself more slowly after profound etherization than after a like chloroform narcosis.

(4,) It is possible for ether as well as chloroform to produce death some hours after the cessation of its administration, at a time when the cerebrum has long freed itself from distinct evidences of the narcotic, so that consciousness and intellectual action have been restored.

In applying these conclusions to the subject of practical anæsthesia it is evident that the depression of the circulation produced by chloroform has an effect upon the respiratory centres only when the pressure

has fallen very low, and whilst it may be a factor in the production of respiratory failure during chloroformization, the failure must be chiefly due to the direct influence exercised by the drug upon the respiratory centres.

Clinical experience shows that nausea and general depression are more pronounced after the use of ether than after the use of choroform, a difference which is strongly insisted upon by the advocates of chloroform as an important agent in favour of that anæsthetic. This research confirms clinical observation, and shows experimentally that the depression of the circulation produced by ether is more permanent than that caused by chloroform, the reason probably being the large amount of ether which is necessary to produce profound narcosis, with lowering of the arterial pressure—an amount so large that it can neither be burned up in the system nor yet eliminated in the time which would be necessary for the much smaller amount of chloroform to be got rid of after chloroformization.

The method of giving nitrous oxide gas with a small percentage of oxygen as an anæsthetic in surgical operations, advocated by Dr. F. W. Hewitt, has met with the approval of many other observers.

Gardiner[3] recommends the employment of nitrous oxide gas containing 10 to 15 per cent. of oxygen in minor surgical operations, as for example the removal of cysts from the scalp, opening and scraping out an abscess, removal of post-nasal adenoid growths, and the removal of enlarged tonsils. He believes that for the painless movement of stiff joints and the stretching of adhesions in their vicinity it is the most suitable agent at our disposal, because muscular flaccidity is quickly produced. In the passage of a catheter in sensitive subjects it may likewise be employed with advantage. The presence of 10 to 15 per cent. of oxygen is sufficient to maintain the due proportion of oxyhæmoglobin in the arterial blood, and thereby renders an inhalation, cut short, if gas alone be given, by the supervention of asphyxial symptoms, capable of being sustained. In one instance he administered nitrous oxide gas during an operation for the excision of a varicocele, lasting fourteen minutes. Recovery was complete, and the patient was not sick subsequently.

Kemp,[4] from experiments on animals, concludes that nitrous oxide gas combined with oxygen is an appropriate anæsthetic for prolonged operations, and that the combination is safer than either chloroform or ether.

Augustus D. Waller[5] has conducted a series of experiments relating to the safest method of administering chloroform for operative and other purposes. He has shown that it is possible to test the influence

of this and other drugs upon living nervous tissue by utilising the "negative variation" as an index of the vitality and functional activity of the nerve.

The result of his experiments have been the conviction that *quantity* is the all-important factor in anæsthesia by chloroform and in death by chloroform. He gives a number of tracings, showing the effect upon a nerve of mixtures of chloroform vapour and air in strengths of from 1 to 10 per cent. Chloroform at 1 per cent. is excitant; at 2 per cent., 3 per cent. and 4 per cent. the anæsthetic effect is more and more pronounced in proportion to the dose. At 5 per cent. there is a well-marked anæsthetic effect and not quite perfect recovery; at 5·6 per cent. the recovery is slight and imperfect; at 10 per cent there is no recovery, the nerve dying rapidly. From the results of a number of experiments 5 per cent. seemed to be the limit of strength beyond which a nerve could not be safely anæsthetised.

For continuous administration 5 per cent. is too high, and safe anæsthesia requires the administration of a mixture of chloroform and air at an average of 1·5 per cent., not above 2 per cent., and not below 1 per cent.

The author advocates the employment of the Junker apparatus, which is adjusted to deliver 1 minim of chloroform at each stroke of the pump; 16 strokes of the pump deliver 1 c.cm. of chloroform, equal to 300 c.cm. of vapour, and this is carried off by 1,000 c.cm. of air at a temperature of 65° F. This apparatus was applied to the isolated nerve so as to produce successfully the required percentage of chloroform; a diagram is given of the apparatus used, and the tracings obtained, from ·5 per cent. and 2 per cent. of chloroform.

Willy Meyer,[6] recommends Schleich's anæsthetic mixture after considerable experience with it at the German Hospital, New York.

Schleich experimented with it on a physical basis, adapting the boiling-point of the narcotic to the temperature of the body. He used a mixture of chloroform, ether, and petroleum ether (benzine—boiling-point 60° to 65° C. [140°—148° F.]).

Formula 1.—Boiling-point = 100·4° F.—Chloroform, 45 c.cm. = 1½ oz.; petroleum ether, 15 c.cm. = ½ oz.; sulphuric ether, 180 c.cm. = 6 oz. Used in short operations.

Formula 2.—Boiling-point = 104° F.—Chloroform, 45 c.cm. = 1½ oz.; petroleum ether, 15 c.cm. = ½ oz.; sulphuric ether, 150 c.cm. = 5oz. Used for medium length operations.

Formula 3.—Boiling-point = 107·6° F.—Chloroform, 30 c.cm. = 1 oz.; petroleum ether, 15 c.cm. = ½ oz.; sulphuric ether, 80 c.cm. = 2⅔ oz. Used for major operations.

The measurement is made by volume, not by weight. It is a real solution chemically.

He used this mixture with the ordinary ether cone—paper and towel. The advantages of this anæsthesia are: No cyanosis, salivation, or superabundant tracheal mucus; no bronchitis or bronchopneumonia afterward. Effect on heart less marked than that of chloroform.

REFERENCES.—[1] "Med. Brief," July, 1898; [2] "Journ. of Exper. Med.," March, 1897; "Therap. Gaz.," Sept. 15, 1897; [3] "Lancet," June 12, 1897; [4] "Brit. Med. Journ.," Nov. 20, 1897; [5] Ibid., April 23, 1898; [6] "New York Med. Rec.," Dec. 4, 1897.

ANILIPYRIN.

Gilbert and Yvon [1] describe under this name, a product, obtained by heating a mixture of 1 part of acetanilide with 2 parts of antipyrine. This substance, which melts at a temperature of 105° C., is more soluble than those from which it is derived, 10 grammes of distilled water, for instance, at a temperature of 15° C. dissolving 43 grammes of anilipyrin, but only 16 grammes of antipyrine, and 0·05 gramme of acetanilide.

Anilipyrin is slightly toxic; it kills a guinea-pig with tetanoid convulsions and hyperpyrexia in doses of 1·8 gramme per kilo of the animal's weight. Its action on the normal temperature of animals manifests itself after the administration of $\frac{1}{5}$ of the toxic dose. It is more marked than that of antipyrine and less than that of acetanilide.

Anilipyrin may be employed as an antipyretic analgesic. It gives good results in **Influenza** and **Acute Articular Rheumatism, Headache,** and **Neuralgia.** It should be prescribed in doses of 1 or 2 grammes (15 to 30 grains) daily, 0·5 gramme at a time.

REFERENCES.—[1] "Gaz. hebdom. de méd. et de chirurg.," July 8, 1897; "Med. Week.," v., p. 320.

ANOZOL.

Anozol ("free from odour"), is the name proposed by Dr. Policarpo Diaz,[1] of Salamanca city, Mexico, for a mixture of iodoform and thymol. He recommends that thymol be powdered and mixed with crystallised iodoform in the ratio of 1 or 2 to 10. The odour of the mixture is said to be only that of the thymol, that of iodoform being completely masked. Care must be taken not to confound this preparation with "anusol," which it resembles in name, but is the bismuth salt of iodo-resorcin-sulphuric acid.

REFERENCE.—[1] "Amer. Med. and Surg. Bull.," Sept. 25, 1897.

ANTISEPTICS.

Dr. Vivian Poore[1] points out that amongst the antiseptics in present use, the coal tar derivatives are the most important, two hundred and twelve different preparations being obtained from the refuse material from gas works. Many of these are of undoubted value.

Many of the substances used for dietetic purposes which we call "condiments," are in reality antiseptics; and many of them have the effect of checking fermentations of various kinds in the alimentary tract.

The vegetable bodies containing "allyl" are of this class, and the use of these is widespread—asafœtida, garlic, onions, leeks, chives, mustard, and horse-radish.

Some of the foul conditions of the pharynx and naso-pharynx, whether connected with syphilis, necrosis, enteric fever, or hæmorrhage, yield with tolerable ease to the persistent application of iodoform, accompanied by douches of boracic acid or quinine solutions. The same may be said of foul discharges from the ears, and ulcers of the body or legs. The good effects of nitrate of silver, arsenical pastes, zinc pastes and lotions, and copper sulphate, are probably due to their antiseptic powers.

Antiseptics are invaluable in cases of paraplegia in which the bladder becomes foul. Injections of solutions of quinine, or boracic acid, or iodoform emulsion (generally successful when the others fail) have added months or years to the life of many a chronic invalid.

In foul conditions of the stomach antiseptic treatment is generally successful, because, like the bladder, this organ is tolerably accessible. Dill water, "kümmel," ginger, cajeput, or peppermint are generally successful for the cure of "wind" and for mixed fermentations.

When fermentative changes become chronic, owing to the presence of the yeast fungus, the modern plan of washing out with a weak solution of permanganate of potassium is undoubtedly very valuable. The author thinks the use of nitrate of silver in this connection is not sufficiently appreciated.

REFERENCE.—[1] "Med. Chron.," 1897.

ANYTOLES.

Löffler,[1] of the University of Greifswald, has published a paper on certain interesting oily bodies which have received the above name. In researches, as to the nature of ichthyol, it was discovered that by the action of sulphuric acid upon various mineral oils and other hydrocarbons a new series of compounds could be formed which possessed the property of rendering substances soluble in water which are not normally capable of solution in that medium.

Helmers considers that hydrocarbons containing about 10 per cent. of sulphur chemically combined are the best. If these hydrocarbons are treated with concentrated sulphuric acid, then neutralised with ammonia, and the insoluble portion precipitated with alcohol, a product is obtained which possesses a great solvent action on bodies insoluble in water. This ammonia salt, formed from the sulphonated hydrocarbon rich in sulphur, is called "anytin," and the compounds formed by it, and thus made soluble in water, are called "anytoles." The practical point is, that a whole series of preparations are now at our disposal in which such substances as phenol, cresol, guaiacol, etc., exist in a soluble form.

Anytin itself, as far as its bactericidal action is concerned, occupies about the same position as ichthyol, but the compounds possess the properties of the substances with which the anytin may be combined.

REFERENCE.—[1] "Deut. med. Woch.," 1898.

APOCYNUM CANNABINUM.

Dr. Alfred A. Woodhall,[1] Lieut.-Colonel in the Medical Department of the United States Army, speaks in the highest terms of the value of this drug as a diuretic.

It probably acts indirectly by increasing the arterial pressure, but it may also be a direct renal stimulant, and cause dilatation of the renal arterioles. Its influence is best seen in those general effusions that depend upon a want of vascular tone, and remarkable results have followed its use.

REFERENCE.—[1] "Brit. Med. Journ.," Dec. 17, 1897.

ARECOLINE.

This drug is one of the alkaloids found in the areca nut, and it stimulates the contractions of the intestine; as a tæniacide, its action is comparable to that of pelletierine.

Ricapet [1] observed, as a physiological action of arecoline hydrochloride, that immediately after the injection there was a considerable increase of the amplitude without diminution in the frequency of the cardiac pulsations, which condition persisted for several hours.

According to the author, toxic doses produce the arrest of the heart about two hours after the injection, and this arrest takes place in diastole. The auricles and the ventricles are relaxed and distended by the blood.

Arecoline will be found very useful in obstinate **Constipation**, from its action on the contractility of the intestine. As a vermifuge or tæniafuge it may also be used with good results; as its activity is

great. It must be employed cautiously, and the initial dose of 0·015 of a grain must not be exceeded.

Arecoline possesses still another property. According to Frohner, arecoline is a sialagogue of the first rank, which not only is comparable to pilocarpine, but even exceeds it. Salivation occurs in about five minutes after its injection, and attains its maximum in half-an-hour.

Martin [2] employed this drug as a tæniafuge, using 60 grains of the powdered areca nut to obtain the desired result, and he observed the absence of colic. The advantages of arecoline over pelletierine are that it costs less, the active dose is not toxic, it does not cause colic, and it is not necessary to follow its employment with a purgative. If arecoline is to be employed for its action on the organism itself, it may be administered hypodermically or by the mouth.

If it is a question of parasites in the intestine, arecoline should be administered only by the mouth, and in such a form as to prevent its absorption until it reaches the intestine—that is, in pills coated with keratin or gelatin. The writer recommends doses of 0·007 of a grain, repeated several times, according to the age of the subject and the tolerance shown, until the desired result is obtained. (See "Tenaline.")

[Arecoline hydrobromide is extensively used in ½ per cent. solution, in place of eserine, as a myotic, by Dr. Richardson Cross, and other ophthalmic surgeons.—Ed.]

References.—[1] "Journ. de méd. de Paris," Aug. 1, 1897; [2] "New York Med. Journ.," Sept. 11, 1897.

BELLADONNA.

Murrell,[1] in an article on the pharmacological action and therapeutical uses of belladonna and its alkaloid points out that belladonna, hyoscyamus, stramonium, scopolia, and duboisia, form a natural pharmacological group, and all contain active alkaloids.

There is some difficulty in dealing with these mydriatic alkaloids and, for the sake of convenience, the old-fashioned classification—which has since undergone considerable modification—is first given. It is as follows:—

Belladonna contains Atropia, or Atropine;
Hyoscyamus contains Hyoscyamine and Hyoscine;
Stramonium contains Daturine;
Scopolia contains Scopolamine;
Duboisia contains Duboisine.

After a time it was found that daturine was not a simple substance, but a mixture of atropine and hyoscyamine. Next it was discovered that duboisine was identical with hyoscyamine. Hyoscine was then submitted to examination, and was found to be an impure scopolamine, consisting of scopolamine with a certain admixture of hyoscyamine.

A still greater blow was inflicted on the old-fashioned classification, by the discovery that atropine and hyoscyamine are practically identical, and that both atropine ("heavy atropine") and hyoscyamine ("light atropine") can be obtained from either belladonna or hyoscyamus. The tendency, nowadays, is to use the term "heavy atropine" in place of atropine, and "light atropine" in place of hyoscyamine. The difference between them is purely chemical, and pharmacologically the two products are identical.

These discoveries necessitate a considerable modification in the classification of the alkaloids originally adopted. The most recent views on the subject are expressed in the following table :—

Belladonna contains			Atropine.
Hyoscyamus contains	Hyoscyamine =		Atropine
	Hyoscine	Scopolamine	Scopolamine.
		Hyoscyamine =	Atropine.
Stramonium contains	Atropine		Atropine.
Daturine	Hyoscyamine =		Atropine.
Scopolia contains			Scopolamine
Duboisia contains	Duboisine =	Hyoscyamine =	Atropine.

This arrangement considerably lightens our labours, for, instead of having half a dozen alkaloids to consider, we have now only two.

REFERENCE.—[1] "Med. Brief." Jan., 1898.

BIRCH LEAVES.

Prof. Winternitz's[1] attention was called to this drug by a patient, whose **Dropsy,** due to kidney disease, was cured by it after other diuretics had been tried in vain. Twenty-four hours after the first dose the secretion of urine becomes very abundant. In many cases the urine increases from 300–400 c.c. to 2000–2500 c.c. a day. The albumin, epithelial cells, and casts, become less numerous and then disappear completely ; although the increase in the urinary secretion is so enormous, no irritation of the renal parenchyma has been noticed. The author recommends an infusion, made by macerating 3 oz. of the leaves in a pint of hot water for two hours, to be drank in three portions during the day. The leaves must be gathered in spring and dried.

REFERENCE.—[1] "Centralbl. für die ges. Therap.," xv., 3.

CALCIUM PERMANGANATE.

This salt, which has heretofore, been employed only for the purification of potable waters, has been the subject of investigation by a number of experimenters, who have shown that it has antiseptic powers, which may be advantageously applied in practical medicine.

Levassort[1] finds that it is admirable for sterilising the hands of

operators, and a 0·3 to 0·5 per 1000 warm solution produces complete asepsis of the skin and the surface to be operated on. Instruments are not attacked by the solution when kept in it only for the length of time necessary for an operation, and thoroughly dried afterwards. In gynecological practice solutions of 0·15 to 0·3 per 1000 are used in infectious vaginal processes and for intra-uterine injections. As a rule, even 0·04 per 1000 solutions are sufficient ; for urethral irrigation one of 0·2 per 1000 is employed, and in conjunctivitis blennorrhoica one of 0·35 per 1000 is used as a wash four times daily.

Köhler, of Darmstadt,[2] employs calcium permanganate solutions for cleaning ill-cared-for, fœtid mouths before treatment, and for rinsing the mouth after extraction, with excellent results.

A 0·2 per cent. solution of calcium permanganate has of late been brought into the market under the name of "monol." This solution is intended for the purification of potable waters.

REFERENCES.—[1] "La Sterilization pratique en Chirurgie," Paris 1896 ; [2] "Amer. Med. and Surg. Bull.," Sept. 10, 1897.

CAPTOL.

Eichhoff[1] recommends captol, a condensation product of tannin and chloral, in **Seborrhœa Capitis** and its complications, such as itching, scale formation, and thinning of the hair.

Captol has more rapid and definite effects than a mixture of the two drugs from which it is made, and is harmless and unirritating. It forms a dark brown hygroscopic powder which dissolves with difficulty in cold water, but more easily in a mixture of warm water and alcohol, is not affected by acids, but is decomposed by alkalies.

The author employs it in a 1 to 2 per cent. alcoholic solution, and asserts that in every case in which he has employed it his results have been wonderfully good. In eight to fourteen days the scales have disappeared from the scalp, the hypersecretion of the sebaceous glands has ceased, and the falling out of the hair has stopped. He employs a preparation called "spiritus captoli compositus," which has the following formula :—

℞ Captol		Ol. Ricini	gm. 0·5
Chloral Hydrate		Spirit. Vin. (65 per cent.)	gm. 100·0
Acid. Tartaric.	āā gm. 1·0	Essent. Flor. Aurant.	gm. 9·5

REFERENCES.—[1] "Deut. med. Woch."; "Journ. Amer. Med. Assoc.," May 28, 1898.

CHINOSOL.

F. Hobday,[1] of the Royal Veterinary College, London, discusses the therapeutic effects of this substance.

It is a light yellowish powder, and is stated to be a pure chemical compound belonging to the quinolin group. It is readily soluble in water, and has for its formula $C_9H_6NKSO_4$. It has been extensively used by the author in both the canine and the equine clinic. As regards its antiseptic properties, **Wounds** of all kinds were treated with solutions of from 1 in 60 to 1 in 1200 with satisfactory effect, the strength which was found to give the best results being from ½ a grain to 1 grain to the ounce. In fœtid ulcerating wounds a proportion of 1 in 480 speedily caused a healthy appearance and entire absence of pus, the application being made once or twice daily. In several cases the effects of solutions of this strength could be compared (in treating wounds in the same animal) with solutions of lysol and creolin, the chinosol giving decidedly the best result. In the form of powder, as a dry dressing, when mixed with boracic acid, zinc oxide, or starch, and compared with iodoform used similarly, the sequelæ appeared about the same. When the pure powder was applied to wounds, the effect was to cause a good deal of pain, the animals showing signs of irritation for two or three minutes, and the raw surface turning a blackish-brown colour. As a disinfectant to the hands, skin, and suture threads, it was employed in solutions of from 1 to 1000 to 1 in 60 without any signs of irritation either to the hands of the operator or the skin of the patient. With instruments, however, care must be taken, and the solution used should be carefully measured. On several occasions when this precaution was neglected the instruments lost their edge, the steel parts became coated with greenish-black spots which were very troublesome to remove, and in those which had white bone handles the latter became discoloured and rough to the touch. The solution recommended for this purpose consists of 1 in 1200, and, if the instruments are to remain in it for anything like an hour, this strength certainly should not be exceeded. As a deodoriser for the hands or for fœtid wounds, solutions of the same strength as those used for disinfectant purposes acted satisfactorily.

The author sums up his conclusions as follows: (1,) That chinosol acts well as an antiseptic, disinfectant, and deodorant when used in certain proportions; (2,) That its action is better marked when used as a lotion than when used as a powder; (3,) That the powder is not suitable for use on fresh wounds unless diluted in some way or other; (4,) That for the disinfection of instruments care must be taken not to make the solution too concentrated; (5,) That the drug possesses toxic properties; (6,) That if used subcutaneously in too concentrated a form it will produce local irritation and swelling. The strength

recommended for subcutaneous injection in human practice is from 1 in 600 to 1 in 200; (7,) That chinosol is not rapidly absorbed from the unbroken skin.

REFERENCES.—[1] "Journ. Comp. Path. and Therap.," March, 1898; "Brit. Med. Journ.," June 4, 1898.

CODEINE.

Heidingsfield,[1] of Strassburg, reports some observations made at the Strassburg Insane Asylum, on twenty-four patients treated with codeine. The usual dose was 0·02 gramme (⅓ grain) three times a day.

He found that:—

(1,) Codeine had little or no anæsthetic action; as a rule, it disappointed in bodily pains, as well as in hysterical disturbances.

(2,) As a narcotic, it acted better in conditions of depression than in exaltation; but only when given in doses three to four times as large as narcotic doses of morphine. In acute mania, it is usually without effect.

(3,) In morphinism, its action is doubtful.

(4,) It is an extremely prompt sedative in affections of the respiratory tract. It might be employed where a medicament to quiet and to alleviate pain must be given continuously for a long time.

(5,) Codeine has no injurious or disagreeable accessory effects, apart from an occasional itching eruption, which, however, disappears in a few days.

REFERENCE.—[1] "Mag. Disser."

COLEY'S FLUID.

Dr. W. B. Coley[1], of the New York Cancer Hospital, has made a large number of valuable observations on Erysipelas and Prodigiosus Toxins in the treatment of **Inoperable Malignant Tumours.**

The case that led up to these investigations was one of small round-celled sarcoma of the neck, which had been operated upon by Dr. William T. Bull five times at the New York Hospital. At the last operation, in 1884, it was found impossible to remove the growth. The patient was given up as hopeless. A few days later an attack of erysipelas occurred, followed by a second attack shortly after the first had subsided. The tumour entirely disappeared. The patient was alive and quite free from recurrence in 1891, seven years afterward.

The first experiments were conducted with repeated injections of living bouillon-cultures of the streptococcus of erysipelas inoculated into the substance of the tumour.

Believing that a portion, if not all, of the curative influence might be due to the toxins rather than to the germs themselves, and hoping

to avoid the dangers and uncertainties of dosage incident to inoculation with the latter, the author sterilised the bouillon-cultures by heat (100 C.) before inoculating: the reaction then obtained was almost exactly like that produced by the living cultures, except that it was less severe and protracted. Next he filtered the bouillon-cultures through a Kitasato filter without heat, and inoculated the filtrate; the reaction was much less marked and less persistent than after injection of the living cultures, but the effect on the tumours, especially sarcoma, was to inhibit the growth and in some cases to diminish the size; the solution was so weak that it required very large doses, 2 to 4 c.cm., to produce much reaction.

In order to increase the virulence of the cultures and the strength of the toxins, the author made use of the principle demonstrated by Roger, of Paris, that the bacillus prodigiosus, a non-pathogenic organism, has the power to intensify certain pathogenic germs, notably erysipelas. No one had tried a combination of erysipelas streptococcus with any other germ, or their mixed toxins, in the human being, nor had the idea ever been suggested in connection with the treatment of malignant tumours. A filtrate containing the soluble toxic products of the streptococcus of erysipelas (obtained from a fatal case) and another containing the soluble products of the bacillus prodigiosus were prepared. These solutions were sterilised by filtration without the use of heat, and preserved in glass-stoppered bottles by the addition of thymol crystals. The two solutions were mixed at the time of using in the proportion of 1 part of the bacillus prodigiosus toxin to 4 or 5 parts of the erysipelas toxin. The reaction that followed was very severe—a chill coming on in one-half hour to an hour after the injection, and lasting fifteen to forty-five minutes; nausea, vomiting, severe headache, with temperature 103° to 104°, usually followed. The disagreeable symptoms usually subsided within twelve hours, but not infrequently a marked herpes labialis followed. The effect upon the tumours was much more marked than when the erysipelas toxins alone were used.

A little later the two germs were grown together in the same broth, the erysipelas streptococcus being first grown alone for ten days, the prodigiosus toxin then added, and the two allowed to grow together for ten days. The results showed this to be a further improvement in technique.

Two years ago the author made another change, with a view to utilise whatever of value might exist in the toxins contained in the dead germs themselves. The cultures were heated to a temperature sufficient to render them sterile (which was found to be 58° to 60° C.)

for one hour, and then used without filtration. This preparation proved to be by far the strongest, and experience has shown it to be superior to the filtered solution in its action upon malignant tumours.

The value of all the preparations of the toxins has been found to depend largely upon the virulence of the original cultures employed, and in the successful cases the toxins were all made from cultures obtained from fatal cases of erysipelas. The culture gradually loses its virulence after a few generations, and various means have been used to restore it, the most efficient being to pass the culture through a series of rabbits. Marmorek, at the Pasteur Institute in Paris, has succeeded in developing a remarkable degree of virulence in the streptococcus by this method. The most powerful preparation of the mixed toxins produced very severe constitutional symptoms with a prolonged chill and a temperature of 104·5° in doses of half a minim (0·066 c.cm.).

Much larger quantities can be borne when injected subcutaneously than when injected directly into a vascular tumour, the difference being undoubtedly due to the more rapid absorption in the latter instance.

The author adopts the plan of beginning with a very small dose—*e.g.*, 1 minim of the filtrate, or ½ a minim of the unfiltered toxins—and gradually increasing the dose each day until the reaction temperature reaches 103° to 104° F. The temperature has been the chief guide in estimating the dose, and very little benefit has been noted in cases in which no reaction was obtained. The frequency of the injections has depended upon the general condition of the patient and upon the rapidity of recovery from the depression of the preceding dose.

Usually the injections have been given daily, aiming to get two or three well-marked reactions during a week. If well borne, the treatment has been continued from two to three weeks, and if at the end of that time no decided improvement has taken place it has been discontinued. In some of the successful cases it has been kept up for three or four months, occasional intervals of a few days' rest having been allowed. In several instances, in spite of the reaction and depressing effects, the patients have steadily improved in general condition and have gained markedly in weight.

The following were the cases treated: Sarcoma, ninety-four; round-celled, fifty-two; spindled-celled, fourteen; melanotic, seven; chondro-sarcoma, two; sarcoma, special type of cell not stated, eight. Carcinoma, including epithelioma, sixty-three; of breast, thirty-one; of uterus, three; of cheek, four; of sternum (secondary), one; of tongue

four; of neck, six; of rectum, three; of lip, two. Sarcoma or carcinoma, ten cases.

In addition to these cases of malignant tumours, eight other cases have been treated with the toxins. These were: tubercular, two cases; keloid, one; goitre, two; recurrent fibro-angeioma, one; mycosis fungoides, one; fibroma, one.

Of the cases of sarcoma, forty-five, or more than one-half, showed more or less improvement. The variety that showed the greatest improvement was the spindle-celled sarcoma; that which showed the least was the melanotic. Next to the spindled-celled, in the order of benefit, was the mixed cell, round- and spindle-, then round-celled; whilst osteo-sarcoma closely approached the melanotic in showing but little effect of the toxins. In a series of seven cases of melanotic sarcoma no improvement was observed in five cases, and very slight change in the two others. It should be observed, however, that in most of these cases the tumours were multiple, and the disease thoroughly generalised before treatment was begun. Yet in all these cases the antagonistic action of the toxins was so trifling that, were it not for the fact that at least one case of melanotic sarcoma has been cured by accidental erysipelas, there would be little to encourage one to a further trial of the toxins in this class of cases.

With osteo-sarcoma the results are scarcely more satisfactory. Most of the cases showed slight improvement; one case, a very large osteo-chondro-sarcoma, was apparently cured, remained well for nearly a year, and then recurred. Further treatment caused temporary improvement, but the patient has since been slowly getting worse, and a fatal termination will undoubtedly occur. This case is very important on account of the size of the original tumour. The fact that it recurred after it had been once apparently cured renders the diagnosis absolutely certain.

In one case of round-celled sarcoma of the neck of very rapid growth, the tumour decreased from the size of an orange to the size of a hen's egg in one week, after three injections of the mixed toxins. No further reduction took place, and in spite of large doses of the toxins, the tumour again began to increase rapidly in size and caused death within three months. In many of the other cases of round-celled sarcoma the improvement was very striking, but in only two cases of purely round-celled sarcoma did a cure result.

In one case of round-, spindle-, and oval-celled sarcoma (recurrent) the tumours disappeared, and the patient is alive and well, more than three years after treatment.

The spindle-celled variety, though embracing a small proportion of the total number of sarcoma cases, forms by far the largest proportion of successful cases. The reason for this remarkable difference in the action of the toxins upon the different types of sarcoma is not apparent, but an attempt to explain it will be made later on.

The author has seen undoubted improvement follow the injections of the toxins in a considerable number of cases of inoperable carcinoma.

He believes that the chief value of the toxins in carcinoma will be found in their use after a primary operation, to lessen the chances of recurrence. This is a question that can only be settled by several years of experiment. It seems, however, reasonable to believe that the toxins would have a far better chance to destroy the invisible traces of infection left behind after operation, than after a palpable tumour has developed.

The author believes that the micro-parasitic origin of malignant tumours furnishes the most rational ground for any satisfactory explanation of the action of the toxins. It is possible that the unequal action of the toxins upon the different types of sarcoma may be due to slightly varying types of the organism that produces the tumour. Thayer has shown that the different types of the malarial organism produce different types of disease, which are by no means uniform in their power of resisting the action of a specific remedy.

Metschnikoff, in 1892, called attention to the close analogy existing between the parasite of malaria and the coccidia, and regarded it as significant that carcinoma should closely approximate the category of miasmatic affections, as proved by its endemic character.

The author's conclusions are as follows :—

(1,) The mixed toxins of erysipelas and b. prodigiosus exercise an antagonistic and specific influence upon malignant tumours, which influence in a certain proportion of cases may be curative.

(2,) This influence is slight in most cases of carcinoma (including epithelioma); most marked in sarcoma, but varies with the different types, the spindle-celled form showing by far the greatest influence.

(3,) The action of the toxins is not merely local in character, but systemic.

(4,) The toxins should be used only in clearly inoperable cases, or after primary operation to prevent recurrence.

(5,) The results will vary greatly with the strength of the preparation, the most virulent cultures giving the best results.

REFERENCE.—[1] "Amer. Journ. of Med. Sci.," Sept., 1896.

COTARNINE.

Cotarnine is methyloxyhydrastinine, and, like hydrastinine, is derived from a base of isochinoline, the two bases respectively being narcotine and hydrastine.

Gottschalk observed that cotarnine hydrochloride (= Merck's "stypticine") has hæmostatic and sedative properties, and may replace ergot and hydrastis canadensis with advantage.

Marfori, using Merck's stypticine, finds experimentally that its general action on animals is first to stimulate the central nervous system, giving rise to convulsions; then to cause a general paralysis, with death from respiratory paralysis. Its general action is similar to narcotine, and, like the latter, it has a slight narcotic action also. Small doses do not influence temperature or sensation. The blood pressure in moderately curarised animals is unchanged by small doses, and falls markedly with large. A rise in blood pressure always coincides with dyspnœa. Thus a vasoconstrictor action is almost excluded. The kidney diminishes in volume, due to lessened cardiac activity and not to a vasoconstrictor action, since the blood pressure falls simultaneously and the cardiac beats increase in frequency.

It is difficult to explain the hæmostatic action of the stypticine observed clinically by Gottschalk and others, since it has no vasoconstrictor action; and Marfori proved also that it does not hasten the coagulation of the blood.

While hydrastinine is less poisonous than hydrastine, cotarnine is much more poisonous than narcotine, the lethal doses in rabbits and guinea-pigs being 0·4 to 0·5 per kilo. of body weight. (See "Hydrastinine.")

REFERENCES.—"Archiv. ital. de biol.," xxviii., 11, 1897; "Brit. Med. Journ.," Feb. 12, 1898.

CREASOTE AND ITS DERIVATIVES.

Chaumier,[1] of Tours, points out that the most convenient forms in which to administer *creasote* by the mouth are pills and solution in cod-liver oil, and in either of these forms the dose may be as much as 30 grains or even more per day. In many cases, however, doses of not more than 3 grains cause indigestion, and, as every physician knows, a tuberculous patient should above all else be kept free from disturbance of his digestive functions. It has been proved by Hagem and Renaut that cases of dyspepsia and inflammation of the stomach occurring in phthisical patients were due only to the use of creasote and guaiacol. Patients who in the first stages of the treatment readily support doses of 30 grains of creasote gradually become unable to tolerate the medicament, and very few are able to continue

the treatment until complete recovery is secured. It often happens that the patient has to abandon this course of treatment at the moment when a complete cure seems to be in sight.

Injection by the rectum would seem to be an improved method of administration, but, as a matter of fact, it is not; the rectum is less able to tolerate the remedy than the stomach, and after a very few days the patient loses control of the bowel and is frequently attacked by colic and diarrhœa. The injection of oil of creasote in the trachea does not appear to be practical; moreover, the larynx and the bronchial tubes would probably tolerate the medicament as little as the rectum and the stomach.

Burlureaux has in some cases obtained excellent results with subcutaneous injections of oil of creasote, but few patients would willingly submit to daily punctures and incur the risk of abscesses or gangrene. As creasote is a poisonous substance, the injection of the large doses prescribed by Burlureaux (from 150 to 230 grains per day) may produce excessive perspiration, coma, or symptoms of meningitis and diuresis. Notwithstanding all these objections, creasote was until the last few years the only remedy for which it could be claimed that it had effected a certain number of cures.

Guaiacol, which for some time received much praise, no longer, in the opinion of the author, holds its own. It was thought to be the active principle of creasote, and it was believed that as such it could replace the latter; but its use, either by the mouth or as a hypodermic injection (in oily solution), has not been attended with satisfactory results. On the contrary, it has frequently caused local complaints, pain, indurations, boils, abscesses, etc. Guaiacol, while possessing all the disadvantages of creasote, is in no way superior to the latter, and at present it is more and more discarded, being now only applied as a remedy to rub into the skin as a fever alleviant, and on a bandage on wounds to produce anæsthesia. It possesses, no doubt, antipyretic qualities, but the reduction of the temperature is of short duration, and may be followed by excessive perspiration, collapse, or at least fainting, giddiness and nausea. Owing to these various drawbacks, guaiacol does not rank among the more important antipyretics. As an analgesic, although inferior to cocaine, it may be found useful, as it can be left without risk to be handled by the patient, and it may also be found serviceable in **Skin Diseases**, particularly **Lupus**, and as a dressing for **Wounds**. (See "Guaiacol.")

Creasotal is a compound in the form of a carbonate of all the substances found in creasote. In the digestive organs, and particularly in the intestines, it splits up into creasote and carbonic acid.

This process takes place slowly, and the creasote set free is absorbed, as and when generated over the whole length of the intestinal canal. On account of this property, creasotal should be given as an intestinal antiseptic in cases of **Typhoid** and **Puerperal Fevers.** Creasotal is a viscous liquid, which, however, can be made fluid by means of a hot-water bath. It has a very slight tarry taste ; its oiliness is too slight to form an objection. When weak doses are required it can be given in the form of capsules of 7½ grains. The author, however, prefers strong doses, and therefore uses pure creasotal by teaspoonfuls. Most patients will take it readily in that form, but with some it has to be covered by means of jam or even given in wafers. It can also be given in the form of a solution with oil, in emulsion with the yelk of eggs or mucilage of acacia, or mixed with a light claret or hot milk, but the author prescribes it by preference in the pure state. With creasotal it is possible to proceed to a thorough course of creasote-therapy. The maximum doses of Burlureaux can be exceeded without risk, and such doses can be taken by the mouth. In exceptional cases, creasotal can be injected subcutaneously. For this purpose the author uses pure creasotal previously warmed. Doses of 75 grains can thus be injected morning and night. The injections can also be administered by the rectum, either as pure creasotal or as an emulsion made with the yelk of an egg. When the patient takes creasotal internally by the mouth, which is the method to be preferred, the author gives a teaspoonful morning and night for adults, or in some cases even three times a day.

As a large proportion of the creasotal is eliminated in the urine (which is shown by the odour and the dark colour of the urine of many patients), the author believes that it can with advantage be used, like salol, as an antiseptic of the urinary canal. For dressing wounds and for treatment of tuberculous or osseous affections, or those of the nerve tissue, the use of creasotal can strongly be recommended as an injection around or into the diseased tissues in the place of the chloride of zinc recommended by Lannelongue. It must be admitted that the odour of creasote given off by the patient under treatment with creasotal is a disadvantage, but this, after all, is only very slight.

Guaiacol-carbonate is a dry, white, crystalline substance ; it is used in the form of powder, sometimes as a wafer, sometimes in solution. The dose most generally adopted is 75 grains per day for adults, but this can be largely exceeded without risk. Like creasotal, guaiacol-carbonate dissolves in the digestive organs, and is not more irritant than creasotal.

Paul Jacob and Hans Nordt[2] record the results of their use of *creasote carbonate* in one hundred and three cases of **Pulmonary Tuberculosis.** The dosage began with 5 drops thrice daily, and gradually increased to 25. The patients received a generous diet. Weighing at regular intervals was insisted upon. Twenty-eight of these histories are given in detail. Of these, eleven showed good, sixteen fair, and one no result. For the remainder, some showed marked, and others moderate, improvement, in spite of the fact that in some one-half, in others the whole, of the treatment was carried out during the winter months. Colds were infrequently observed, and thus a common cause of failure to improve was removed. In not a single instance was the appetite unfavourably influenced. In five a loss of appetite, brought about by previous treatment, disappeared. In general there was a gain in weight. The cough and expectoration steadily improved, and in most the physical signs were either the same or indicating less involvement of the lung.

REFERENCES.—[1] "Lancet," Jan. 22, 1898 ; [2] "Charité-Ann.," Berlin, S. 159, 1897.

DERMATOL.

Dermatol is a basic oxide of bismuth, and has been employed as a substitute for iodoform in the treatment of **Wounds,** having both the desiccating power of bismuth and the hæmostatic and astringent characteristics of gallic acid. Its employment as a drug for internal administration has not been general, though Colasanti and Dutto have prescribed it with advantage in various cases of intestinal catarrh, and Werther has found it useful in **Chronic Intestinal Catarrh.**

Perlmutter[1] has recently published a paper on its employment in **Gastric Ulcer** and **Diarrhœa,** his observations being made on an extended series of cases. In diarrhœa, in phthisical subjects, and in acute and chronic **Enteritis** he found it valuable, all cases of this kind benefiting by its use, and the result being by no means of a transient character. The drug was given in doses of from 8 to 30 grains, in water, twice a day. It is not poisonous, and produces no after effects except a constipation, which can be combated by means of glycerin enemata. In gastric ulcer it was useful, especially in acute cases where patients could be kept at rest, and properly dieted and made to lie on the affected side after taking the dermatol, so that it might come into contact with the lesion. (See "Iodoform Substitutes.")

REFERENCES.—[1] "Münch. med. Woch."; "New York Med. Journ.," Sept. 18, 1897.

DIGITALIS.

Dr. Arthur R. Cushny[1] has conducted an elaborate investigation on the action of substances of the digitalis series on the circulation in mammals. The apparatus used was that of Roy and Adami, artificial respiration being supplied for small animals by an air-pump and Runne's interrupter, while for large dogs the ordinary hand-bellows were made use of. In cats the poison was injected by the jugular, in dogs by the saphenous vein, generally in 0·1 per cent., in some cases in 0·2 per cent. solution.

Most frequently strophanthus was used, but several experiments were made with digitalinum verum, antiarin, digitalin, erythrophlœine hydrochlorate, and convallamarin. The action of all of these on the cardiac muscle is identical in kind, although varying in strength. Thus digitalinum verum and erythrophlœine proved to be the weakest of all, while antiarin and strophanthus were the strongest, and convallamarin and digitalin occupied an intermediate position. The different members of this series probably diverge considerably in the strength of their vascular as compared with their cardiac action. They also differ in the relative degree to which each acts on the inhibitory apparatus and the cardiac muscle. Thus erythrophlœine undoubtedly acts less on the cardiac muscle and more upon the vagus centre than any of the others examined. During the stage of vagus stimulation with strophanthus there was a slowing, due entirely to the inhibitory apparatus, and this was absent in hearts which had been paralysed by atropine.

The muscular action of digitalis extends to the auricle as well as to the ventricle, although in the former it is often concealed, owing to the inhibitory mechanism having more influence on that division of the heart, and there opposes it more directly than in the ventricle. In some cardiometric tracings from the cat's heart under these drugs the systolic volume of the heart decreased, while in others it remained unchanged, and in others (more especially with erythrophlœine) a rapid increase in the total amount of blood contained in the heart at the end of the ventricular systole manifested itself. In one set of observations the increased completeness of ventricular systole was evidently sufficient to compensate for the increase in the residual blood of the auricle, or possibly these may have been cases in which the muscular action was equally marked in the auricle and ventricle. In the last there is no doubt that the ventricular contraction was increased, but this was masked entirely by the increase in the residual auricular blood. The "contraction volume," or output of the ventricles per beat, is uniformly much increased, whether slowing of the rhythm is

marked or not. This is due to the increased systole, aided in some cases by an increased dilatation of the ventricles. In regard to the amount expelled per unit of time, the results varied a great deal, according to the extent to which slowing of the rhythm occurred. In those cases in which the change of rhythm was but slight the blood expelled in ten seconds was distinctly augmented, while in other experiments in which more marked slowing occurred the output, although at first increased while the retardation was slight, later became practically normal, and still later, when extreme slowing set in, sank below the normal. The increase in output may be very considerable, amounting in some cases to 50 per cent., and between this and a decrease every gradation may be met with. In the irregular or periodic stage of the heart's action the cause is to be found in the increasing irritability of the cardiac muscle, with or without the antagonistic inhibitory mechanism coming into play. Similar features occur in the later stages of poisoning with other drugs, such as aconitine.

The results of the cardiometric tracings throw considerable light upon the cause of the increased blood-pressure in the first stage. From these it is seen that the amount of blood thrown out by the heart per unit of time may vary considerably under digitalis. Except, however, in cases where the slowing is very marked indeed, the output is increased, although this increase may be comparatively small, and seems insufficient to account for the marked rise in pressure. The output is the only factor by which the heart can influence the mean blood-pressure tracing. Increased force of contraction can only possibly increase the size of the individual beats, the mean pressure remaining unchanged. The discrepancy between the effect of the increased output and the actual blood-pressure observed must be ascribed to some other agency than the heart, *i.e.*, to the peripheral blood-vessels. In the second stage, as the irregularities become more marked, the pressure generally falls, owing to the increasing inefficiency of the heart's action.

From a practical standpoint, the beneficial effects of digitalis in quickening the circulation are in the main due to its direct cardiac action. Since it increases the resistance to the passage of blood through the lungs to a very much greater extent than strophanthus, it might be expected that in **Dilatation of the Right Heart** from emphysema the latter would have more beneficial effects than the former. In **Pneumonia** the action of digitalis is rather in improving the nutrition of the heart by increasing its output and the rapidity of the circulation, and not to any special action on the right side.

Hare[2] has instituted a series of experiments to determine whether digitalis, when administered over a considerable period of time, actually increases the development of the heart muscle. A litter of ten pigs, two months old, was divided into two parts of five pigs each. One was kept as a control, and to the other increasing doses of digitalis were given. After four-and-a-half months the pigs were killed, and their hearts excised, weighed, and put in formalin for subsequent examination. The combined weight of the digitalis-fed pigs was 19¾ lbs. greater than the control pigs, and the combined weight of the hearts 3¼ ozs. more than that of the controls (28½ ozs. compared with 25¼ ozs.). The examination of the hearts was undertaken by Professor Coplin. Macroscopically, the ventricular wall of the digitalis hearts was very much thicker than that of the others; it also cut with more resistance, and seemed uniformly firmer. The increase in thickness was much more marked on the left side than the right. Microscopically, on careful measurement, the muscle fibres of the digitalis hearts were found to be larger than those of the normal hearts, and it therefore seemed probable that the enlarged hearts of the digitalis-fed animals were due to a hypertrophy of the muscle fibres rather than a hyperplasia. The author thinks that if digitalis can produce hypertrophy of a normal heart, it is only fair to assume that when the drug is given to a man suffering with valvular disease with deficient compensation it must aid materially in inducing compensatory hypertrophy, in addition to any immediate stimulant action which it may exercise in the circulatory apparatus.

REFERENCES.—[1] "Journ. of Exper. Med.," No. 3, p. 233, 1897; [2] "Therap Gaz.," Dec. 15, 1897.

ERGOT.

Dr. W. E. Fothergill,[1] of Manchester, formulates the rules for the administration of ergot in **Post-partum Hæmorrhage.** Many physicians use ergot during the third stage of labour, and some still give it before the birth of the child; but most modern teachers do not give ergot until after the placenta has been removed. When the womb is empty, however, ergot should be given if good firm uterine contraction does not follow soon. If given by the mouth, 2 drachms of the liquid extract is none too much; 2 or 3 grains of ergotin, injected deeply into the buttock, acts more quickly. There are many good preparations of ergotin for hypodermic injection. The author finds the following useful:—

℞ Ergotin 5ij | Distilled Water, q.s. ad ℥j
Chloral Hydrate 5ss |
M. Sig.—Inject 10 or 20 ♏ deeply into the muscles of the buttock.

The chloral hydrate keeps the solution from decomposing for a long time.

Ergot is useful as a preventive against *post-partum* hæmorrhage, but does not act quickly enough to be of much use when bleeding has actually begun.

Abel[2] considers ergotinol preferable to other preparations of ergotin on account of the ready adjustment of its doses, its prompt action, and particularly its keeping qualities. He used ergotinol that had been kept for a year, and noticed no impairment of its activity. He observed no unpleasant effects, even on the prolonged use of it in daily amounts of a Pravaz syringeful. The pain caused by its injection, which is its only drawback, may be almost done away with by combining with the ergotinol minimum doses of morphine or cocaine. (See also "Sphacelo-Toxin," a substance obtained from ergot.)

REFERENCES.—[1] "Med. Brief," July, 1898; [2] "Berlin. klin. Woch.," No. 8, 1897.

ERYTHROL TETRANITRATE.

An explosion, by which a young chemist lost his life whilst engaged in mixing this drug with lactose in a mortar, called attention to its dangerous chemical properties. Erythrol tetranitrate is solid and crystalline, and melts at a temperature of 61° C. (142° F.). When pure it is colourless, and if kept in a dark and moderately cool place is fairly stable. If exposed to warmth, and especially sunlight, it rapidly undergoes decomposition, turning yellow and giving off nitrous fumes. Its solubility in water is slight, but it dissolves readily in alcohol and in ether. It is a vaso-dilator and belongs to the group of which glycerol trinitrat, known familiarly as nitro-glycerin, may be regarded as the typical representative. Blood pressure experiments show that the nitrates of erythrol and mannitol have a less marked but more prolonged action than those of glycerol and glycol. On theoretical grounds it might be supposed that the new remedies would be useful in the treatment of **Cardiac Pain, Bright's Disease, Migraine,** and **Raynaud's Disease,** but, apparently, there has been very little demand for them.[1] A well-known pharmacist stated that he had never dispensed a prescription containing erythrol tetranitrate, and the dispenser at a large general hospital admitted that the name was not familiar to him. There is very little doubt that these new organic nitrates cannot be handled with impunity in any form in which trituration is necessary. They, in common with many other nitrates, were known to be explosive, but that they would develop such activity by being merely gently stirred with lactose could not have been foreseen.

Dr. Marshall,[2] of Cambridge, points out that the simple name

erythrol should not be used as a contracted form of erythrol tetranitrate, as erythrol is quite another substance. A better abbreviated name would be tetranitrin. (See "Nitro-glycerin.")

REFERENCES.—[1] "Brit. Med. Journ.," Jan., 1898; [2] Ibid., Feb. 19, 1898.

EUCAINE.

Hobday [1] states that in the clinic of the Veterinary College eucaine has been used in forty cases, some of them being of a nature especially favourable for making a comparison between the action of that drug and cocaine.

The results have been to confirm the view that the toxic dose of eucaine is somewhat larger than that of cocaine, and at the same time that for operation on the cornea eucaine compares very favourably with cocaine, although anæsthesia is not produced quite so rapidly; but for its local anæsthetic effects when injected subcutaneously or applied locally to parts other than the eye, the results obtained in the horse, dog, and cat, have not by any means come up to the results obtained with cocaine. The author and his colleagues have found, however, that a mixture of cocaine and eucaine dissolved in water possesses the better anæsthetic properties of the cocaine solution, and can be tolerated in larger dose than cocaine alone.

Scognamiglio [2] reports as follows: (1,) The anæsthesia produced by this anæsthetic is more complete and lasts longer than that of cocaine. There is no mydriatic action nor any disturbing influence upon accommodation, and, further, it is indubitably less toxic. In ten cases of diseases of the nose and throat an 8 to 10 per cent. solution was used. The results excelled those of cocaine. The anæsthesia developed rapidly and extended over a large area.

Perlati has reported that in dental practice he found that complete anæsthesia is effected, and teeth can be extracted quite painlessly; nor did he meet with any toxic symptoms.

In ophthalmic practice it was employed in fifteen cases, and the anæsthetic effect was found to be distinctly preferable to that of cocaine, with the exception of a few cases where a subcutaneous ischæmic action is desired. Of fifteen cases of minor surgery, in two only was it necessary to repeat the injections (10 per cent.) on account of the lengthy operation.

Legner and Lihou [3] find that it produces a slight slowing of the pulse, but the blood-pressure is unaltered. To reduce the latter large doses are necessary, the animal dying from respiratory paralysis. As regards its safety, it may be said that no inconveniences, not even the slight ones, have been observed. The anæsthesia is equal to that of

cocaine and even more rapid ; the toxicity is about half that of cocaine.

A. Legrand [4] makes use of a 1 per cent. solution, and notes in employing Schleich's method that each point of insertion is marked by a rose-coloured zone, so that the line for the intended incision is well marked. With solutions of the same percentage the anæsthesia is not so profouud and its duration less than with cocaine. During the operation the pulse is slower, but this retardation generally disappears within seven hours after operation. Operations for excision of veins, adenitis, hernia, varicocele, were successfully carried out under its influence.

Dr. G. Vinci [5] states that his observations, show that eucaine is less toxic than cocaine. The general symptoms of poisoning are, in the main points, identical ; but with equal doses they are less marked with the former. Nor in a large experience have the prodromal symptoms been wanting. The influence upon the heart is not greater ; both substances slow the rate and slightly elevate blood-pressure, but only poisonous doses diminish pressure, as well with eucaine as with cocaine. The former gives as intense an anæsthesia, but of shorter duration than that of the latter.

E. T. Mellish [6] states that this drug is chemically compatible with the following substances : Phenol, trikresol, guaiacol, naphthol, salol, ichthyol, formalin, iodoform, such hydrocarbons as petroleum, vaseline, benzene, fats and fatty oils, ethereal oils, camphor and terpenes, alcohol, glycerin, ether, chloroform, chloral, alkaloids, and alkaloidal bodies. It can be sterilised by heat, and appears to be permanent in solution.

Ver Eecke,[7] after a full experimental study of the physiological action of hydrochlorate of eucaine, arrives at the following conclusions among others :—

When instilled in the conjunctival sac it first produces anæsthesia of the conjunctiva, and finally of the cornea, at the same time that it rapidly lowers the intraocular pressure.

It reduces the vitality of the red blood corpuscles, and produces fatty degeneration of the heart and of the involuntary muscles.

Chloral hydrate diminishes or stops the convulsions produced by eucaine. Chloralisation will allow the administration of doses of eucaine which are beyond the fatal limit.

The antagonism between hydrochlorate of eucaine and chloral hydrate is not reciprocal.

Reclus [8] has used eucaine β for more than six months. Its solutions are very stable and can be boiled, whereas cocaine at 80° is trans-

formed into ecgonine, which is without analgesic effect. It is much less toxic than cocaine, but its anæsthetic effect is also weaker. The author prefers a 2 per cent. solution for injecting into the tissues. It causes local vaso-dilatation, and hence bleeding is apt to occur, and half an hour after injection sharp smarting pain is often felt, which may last an hour or two. He concludes that cocaine carefully used is to be preferred. (See "Holocaine" and "Mydrin.")

REFERENCES.—[1] "Journ. Comp. Path. and Therap.," March 29, 1897; [2] "Therapist," No. 4, p. 33, 1897; "L'Nuov. Remed.," fasc. 1-3, pp. 3, 18, 1897; [3] "Gaz. des hôp.," Nos. 19, p. 183; 20, p. 191, 1897; [4] "Les Nouv. Remèd.," No. 6, p. 161, 1897; [5] "Bull. gén. de thérap.," No. 54, p. 170, 1897; [6] "Therapist," No. 5, p. 49, 1897; [7] "Bull. Acad. roy. de méd. de Belg.," No. 4, 1897; [8] "Bull. de l'Acad. de méd.," March 29, 1898.

EUCALYPTUS GLOBULUS.

Dr. Monfrida Musmecin[1] finds that a decoction of the leaves of eucalyptus globulus and a solution of a salt of strychnine form a flocculent precipitate, a solution of citron-yellow tint remaining above, and the strychnine losing its bitter taste. This raised the question as to whether eucalyptus was an antidote for strychnine. The author carried out a number of experiments upon animals, to ascertain what effects would be produced by giving these two drugs together, and what antidotal power eucalyptus would exert after the development of the symptoms of strychnine poisoning. He found that when these drugs were given simultaneously the animal survived, while if the same amount of strychnine were given alone to an animal of the same kind and size, death would ensue. In another set of experiments the eucalyptus was given after convulsions had appeared, and then these became much less marked and even disappeared. From these experiments the writer believes that eucalyptus has a real antidotal action, and that a practical application of it should be made by employing a decoction for washing out the stomach in such cases.

REFERENCE.—[1] "Med. Record," Sept. 4, 1897.

GUAIACOL.

Lucas-Championnière,[1] in 1895, brought up before the Academy of Paris the question of the possibility of using guaiacol for local anæsthesia. He advised its employment by incorporation into ointments and its subcutaneous injection for local anæsthesia in various minor surgical conditions. He found its employment without danger, and offering as complete anæsthesia as did cocaine. At first it was dissolved in oil of bitter almonds. The amount employed for injection was 5 centigrammes of a 5 per cent. solution. In tooth

extraction painful sensation disappeared, while tactile remained. At first, some eschars appeared on the tongue, but these were referred to a bad method of injection and an initial defective solution. Anæsthesia was fair in five minutes after injection, and complete in seven or eight.

Raymond [2] and Scroda [3] suggested its employment by friction in cases of acute **Tonsillitis.**

Laurens [4] has used guaiacol as a local anæsthetic in aural practice and in operations about the throat and nose. In aural practice he advises the preliminary cleansing of the ear with some warm alkaline fluid, then with an antiseptic, and finally the instillation of 5 or 6 drops of warmed guaiacol solution. This is left in for some fifteen to twenty minutes and then withdrawn with hydrophile gauze. Under these circumstances he was able to perform paracentesis of the drum. His first case was that of a nervous patient convalescent from typhoid fever, and the puncture caused but little pain. In his second, a neuropathic individual, the anæsthesia was incomplete, but the puncture was effected with very little annoyance to the patient. He thinks that guaiacol is of service in incising **Furuncles** of the meatus.

In the nose, he advises the laving of the operative field two or three times with the solution, and then the application of a saturated tampon in the usual manner. To produce anæsthesia a much longer time is required than with cocaine. Fifteen to twenty minutes suffice for an ordinary intranasal operation. The author made seven cauterisations of the inferior turbinates. In four there was complete anæsthesia, and in the remaining three only a slight sense of burning. He noted, as an effect of the application, only a slight retraction of the tissues ; at first, indeed, there may be an initial tumefaction of the tissues. Hence guaiacol can never be as serviceable as cocaine where we wish to make a methodical examination of the nares, or in cases of supposed reflex neurosis, to determine the possible existence of sensitive areas.

In the pharynx the author found anæsthesia more difficult to obtain, owing to the reflex movements which the remedy caused. He bathed the operative field thoroughly three or four times. He records five cauterisations of voluminous granulations of the buccal pharynx without pain, three of tonsils in infants with a like result, and two of removal of tonsillar tissue by forceps.

In the larynx the slight absorption of the remedy proved an obstacle to satisfactory anæsthesia. Repeated applications were necessary to cause the slightest deadening of local sensibility. The author further notes that the remedy forms a sort of emulsion with mucus, a whitish

magma which, previous to operation, should be removed with hydrophile cotton. No eschars resulted after application, though tumefaction sometimes remained for twenty-four hours. There was no sweating or disturbance of either the respiratory or circulatory systems.

Geronzi[5] confirms these observations, but uses a solution composed of 2 grammes of guaiacol dissolved in 15 grammes each of alcohol at 90° and distilled water. To destroy the disagreeable odour of the mixture he added a few drops of oil of bergamot or tintcure of vanilla. As regards the relative advantages of the oily and alcoholic vehicles, the former allows the guaiacol to remain longer in contact with the tissues, but the latter has the greater diffusive power.

S. W. Langmaid[6] recommends the following formula: To a given weight of oil 10 per cent. of dried sulphate of zinc (by weight) is added, and the mixture heated over a water bath for an hour. It is then filtered, and then 12½ per cent. of absolute alcohol (by weight) introduced. It is shaken occasionally for a few days and then decanted. The result is a clear limpid fluid with which guaiacol mixes readily.

He thinks that from no point of view can it be maintained that guaiacol is superior to cocaine. Guaiacol requires for absorption a much longer time than does cocaine. In oily solution it is more difficult to prepare and less agreeable to handle. To some few people its odour is disagreeable. The anæsthetic effect is less certain than that of cocaine, but where, for any reason, the latter is inadmissible, guaiacol is in the majority of cases a reliable substitute.

Caporali[7] finds that external applications of guaiacol not only relieve pain and reduce abnormal temperature, but also increase the utilisation of albuminoids and the absorption of fat, and diminish oxidation.

In painful affections of the skin, attended by hyperæmia, such as inflamed **Acne**, or **Abscess** in the external auditory canal, applications of guaiacol valerianate (geosote) relieved pain and checked further pus formation. In **Chilblains** this agent promptly relieved the annoying symptoms. Small compresses wet with guaiacol and applied over the painful spots afforded immediate relief in **Neuralgia.**

In the treatment of gastric catarrh, chronic gastritis with gastrectasia, and other conditions associated with or producing fermentation of the contents of the stomach, creasote valerianate (cosote) exerts a stronger antiseptic action than guaiacol valerianate.

In cases of **Pulmonary Phthisis** the remedy is well borne. Favour-

able results have been observed by Rieck, of Bassum, Germany, who reports increase of appetite and powers of digestion, and of physical strength under its use.

Inhalation of creasote in combination with oil of peppermint is alleged by Carasso to cause a disappearance of the tubercle bacilli from the sputum, and he reports good results, clinically, after nearly ten years' experience with it.

Guaiaquin,[8] or quinine guaiacol-bisulphonate, is a compound prepared by the interaction of equimolecular weights of guaiacol-sulphonic acid (made by treating crystalline guaiacol with concentrated sulphuric acid) and quinine. It is a yellowish, acid, bitter solid and is readily soluble in water, alcohol or dilute acids. It is free from the odour and caustic effects of guaiacol, for which it is offered as a substitute.

REFERENCES.—[1] "Bull. de l' Acad. de méd. de Paris," July 30, 1895 ; [2] "Med. Rec.," March 24, 1894 ; [3] "La Sem. méd.," No. 27, 1894 ; [4] "Ann. des mal. de l'oreille," xxii., p. 9, 1896 ; [5] "Arch. ital. di otol.," iv., p. 323, 1896 ; [6] "New York Med. Journ.," Aug. 28, 1897 ; [7] "Treatment," Oct. 14, 1897 ; [8] "Amer. Med. and Surg. Bull.," Sept. 25, 1897.

HOLOCAINE.

This drug, a full account of which was given in the "Medical Annual" of 1898 (page 35), still continues one of the most popular of the substitutes for cocaine.

Holocaine is a derivative of para-phenetidin, from which also are derived phenacetin and lactophenin. It is a strong base, insoluble in cold water but readily soluble in alcohol and ether. The chlorohydrate of holocaine, which Täuber proposed as a local anæsthetic for the eye, takes the form of white needles, slightly soluble in cold water, but more readily soluble in warm. Its aqueous solution is neutral, and undergoes no change on prolonged boiling.

J. Hinshelwood,[1] of Glasgow, has made a large number of observations on the effect of the instillation of a few drops of a 1 per cent. solution of holocaine into the normal eye. The following is a summary of the facts observed: (1,) There is complete anæsthesia of cornea and conjunctiva produced in from fifteen to thirty seconds after instillation ; (2,) The anæsthesia produced lasts about ten minutes; (3,) There is immediately after instillation a slight feeling of burning, which rapidly passes off; (4,) There is produced shortly after instillation a slight hyperæmia of the bulbar and palpebral conjunctiva, which rapidly passes away ; (5,) There is no alteration in the size of the pupil ; (6,) There is no disturbance of accommodation ;

(7,) There is no alteration in the tension of the eye ; (8,) The corneal epithelium it not changed in the slightest, but retains its normal appearance.

Holocaine seems to have no other effect upon the eye than rendering it anæsthetic. Herein lies its advantage over cocaine, which causes a conjunctival anæmia by constriction of the vessels, dilates the pupil, and often causes a desiccation of the corneal epithelium. Another great advantage of holocaine, as evidenced by these observations, is the great rapidity of its action, producing complete anæsthesia in from fifteen to thirty seconds.

It is used in **Phlyctenular Affections, Corneitis**, to relieve pain and to admit of a more thorough examination of the eye.

Holocaine is therefore a most valuable agent for the production of anæsthesia of the eye. Its peculiar value lies in the fact that apart from the anæsthesia, it seems to have no further effect on the eye whatever. It seems to act simply by paralysis of the sensory nerve endings, and has no other action on the eye, leaving the pupil accommodation and tension quite unaffected. The rapid action of the drug is also a decided advantage, and in dispensary practice, where one is dealing with a large number of patients, leads to a considerable saving of time.

According to Heinz a 1 per cent solution of holocaine is powerfully antiseptic, as proved by experiments on the growth of bacteria, and therefore boiling the solution to sterilise it is not necessary. This is a further advantage that the solution is itself a powerful antiseptic.

The 1 per cent. solution does not keep well, and requires to be made fresh once a week or once a fortnight at the outside. It should be made with fresh distilled water. (See "Eucaine," and "Mydrin.")

REFERENCE.—[1] "Brit. Med. Journ.," Sept. 3, 1898.

HYDRASTIS.

Saenger[1] has made observations on the effect of hydrastis canadensis on **Bronchial Catarrh.** He has arrived at the following conclusions : The cases for which it is most useful are those where the bronchial catarrh is very chronic. It produces marked diminution of cough, makes the bronchial secretion much thinner and less purulent, and so facilitates expectoration. At the same time it improves the constitutional condition. In **Phthisis** it has proved beneficial by allaying paroxysmal cough. No bad effects were observed when a dose of ℥xx to xxx of the fluid extract was given four times a day ; but in cardiac cases and in very feeble patients larger doses were found to produce attacks like angina pectoris.

Hydrastinine.

This substance is an oxidation product of hydrastine, the active principle of hydrastis canadensis; it has the empirical formula $C_{11}H_{13}NO_3$, and is to be regarded as a derivative of pyrocatechin. Rousse[2] used the hydrochlorate and found it, in checking **Uterine Hæmorrhage,** to have an ameliorative influence upon **Night Sweats of Phthisis.** He next investigated the action of the drug upon frogs and mammals, and was enabled to prove that it exerts a vaso-constrictor action on the generative organs and the intestine, which persists even when the bulbar vasomotor centre is paralysed by chloral, and is hence peripheral in nature. A similar action probably results in the renal blood vessels as well. Some dilatation of the cutaneous blood vessels accompanies this effect.

The author found experimentally that hydrastinine induced uterine contractions; this is not noticeable clinically, but he considers it probable that in women the uterine vaso-constriction is accompanied by a contraction of the smooth muscle of the organ, which is too gentle to occasion pain or abortion. During labour it strengthens feeble contractions and revives an inert uterus. The author proposes in a subsequent paper to state the results obtained with cotarnine, the action of which he has shown to be similar to that of hydrastinine. (See "Cotarnine.")

REFERENCE.—[1] "Centralb. für inner. Med.," Nov. 17, 1897; [2] "Arch. Internat. de Pharm.," iv., 3 and 4.

ICHTHYOL. *F. de Havilland Hall, M.D., F.R.C.P.*

M. Le Tanneur[1] states that he has experimented with ichthyol in the following affections for the past two years: (1,) Pulmonary tuberculosis; (2,) Dry catarrh; (3,) Purulent catarrh; (4,) Bronchial dilatation with fœtid expectoration; (5) Acute bronchitis.

In the treatment of these different affections the author found the best effects from the employment of this drug. In numerous cases of **Tuberculosis** he alternated the use of guaiacol or creasote with that of ichthyol for several months, and obtained excellent results. It was employed in the form most acceptable to the organism, that is, in capsules containing 4 grains each, and covered with a coating which enabled the capsule to pass through the stomach into the intestine without becoming dissolved. From 4 to 8 capsules a day were taken at meal times. The most careful observations, says the author, failed to reveal the least inconvenience in the digestive tract. In several patients, even those who showed symptoms of gastric fermentation or diarrhœa, these symptoms were diminished by the use of the ichthyol. In fifty cases of tuberculosis of all forms and

degrees the amelioration was manifest in forty-two, recovery was complete in two, and in six cases only no benefit was obtained.

In the treatment of **Dry Catarrh,** the dominant symptoms were the obstruction of the small bronchi by mucosities, which were difficult to expel, and provoked coughing and hindered respiration, and the thickening of the mucous membrane of the bronchi, which diminished the lumina of the aerial canals, and consequently also hindered respiration. In these cases the ichthyol acted on the mucous membrane as a revulsive, freed it, and gradually reduced it; the sputa became liquid, and their expulsion easier. These facts encouraged the author in the employment of the drug, and he continued its use in fifty cases, in which he obtained veritable success.

In **Purulent Catarrh** and in **Bronchial Dilatation** with fœtid expectoration, ichthyol gave good results; the greenish expectoration became yellow, then simply mucous; the cough diminished, and the disease gradually progressed toward recovery. The author cites two cases, which he considers remarkable, of very localised bronchial dilatation subsequent to an attack of pleurisy, in which the affection was very rapidly ameliorated by this treatment. One of the patients was completely freed from the expectoration after the consecutive employment for two months of 8 capsules a day.

In the acute affections of the bronchi, it was in the paroxysmal forms of the cough that the ichthyol exercised the best action. The quieting effect, says the author, which generally occurred in less than three days, indicates that this drug has a very sedative action on the bronchial reflexes.

In **Acute Bronchitis,** during the period of acuity or that of development, at the time when the cough was harsh and paroxysmal, a notable diminution of the objective symptoms was observed to follow the administration of 6 capsules of ichthyol a day. In the latter stage the modifications in the character of the sputa were as rapid as they were manifest. From green the sputa became yellow, then white, in from two to four days at the most; finally, they diminished rapidly in quantity.

Concerning the general symptoms of the patients, the author thinks that the action of ichthyol presents considerable interest. From the beginning of his experiments he observed a notable amelioration in this respect. In patients suffering from tuberculosis or catarrh, in whom the general condition was altered, there was an increase in weight of from seven to eight pounds during the first month of the treatment, in others of only four pounds, but in two-thirds of the cases there was an increase in weight.

REFERENCE :—[1] "New York Med. Journ.," Jan. 22, 1898.

IODINE.

Murrell [1] points out that we all know that when an ulcer of the leg is indolent, and refuses to heal, the best plan is to touch it up with lunar caustic or sulphate of copper. This mode of treatment is, with certain modifications, equally applicable to an **Ulcer of the Stomach.** The author says, "What I do is to paint it with iodine. There is not the slightest difficulty; I order the patient 10 drops of tincture of iodine three times a day, in a wineglass of water. It produces no pain and no inconvenience, and the condition of the mucous membrane of the stomach rapidly improves, until in a few days, the ulcer is completely healed, and the digestive powers are restored to their pristine condition. I have seen this over and over again, and I have never known iodism or any inconvenience result from the treatment. In the early stages it will often effect a cure without limitation of diet or confinement to bed. Should the patient object to the pungency of the tincture of iodine I add ½ a drachm of glycerin to each dose. This I believe to be the best plan of curing gastric ulcer."

Bouveyron [2] considers that uncombined iodine does not occupy the place in therapeutics to which it is entitled, and attributes the low estimation in which it is held to insufficient dosage and defective methods of employment. To obtain iodine in a form in which it is well tolerated, and to get good effects, it is necessary to employ an excipient which will not combine with the iodine, and, while dissolving it perfectly, will correct its causticity and styptic taste. To prevent the combination of iodine with alimentary substances, it is necessary to administer it half an hour before meals.

Bouveyron uses glycerin and syrup made with distilled water to correct the causticity, and very small quantities of iodide to dissolve the iodine. Lastly, to disguise the taste, he uses citric acid, which does not combine with iodine. He gives the following formula :—

℞ Iodine 1 grm. (15 grs.)	Citric Acid 15 grms. (225 grs.)
Iodide of Potass. q. s.	Simple Syrup 1,000 grms. (35 ozs.)
Glycerin 5-10 grms. (75-150 grs.)	

One tablespoonful half an hour before meals.

The author commences by giving 2 tablespoonfuls in the day, and increases up to 6, and even 9, tablespoonfuls, per day, which represents 15 centigrammes (2¼ grains) of pure iodine. These doses are always well borne, and out of thirty cases he has only observed two cases of iodism.

This treatment is especially useful in bad cases of **Tertiary Syphilis.**

Linosser and Lannois [3] refer to the fact that if the healthy skin is

painted with tincture of iodine, a small quantity of the halogen is found constantly in the urine. They have experimented as to the conditions under which this absorption takes place. They find that:—

(1,) Tincture of iodine is absorbed by the skin in very small and inconstant quantities, if the painted surface is freely exposed to the air.

(2,) If the surface is covered hermetically the quantity absorbed is much greater, in one case the amount recovered from the urine being nearly a third of that applied to the skin.

(3,) The greater absorption from the covered surface proves that the iodine enters chiefly by the skin itself, and not by the inhalation of its vapour.

(4,) The superficial alteration of the epidermis caused by the tincture, unless it has progressed to the destruction of the corneal layer, seems to act rather as an obstacle to absorption than otherwise, since it is during the first few hours after its application that the urine is richest in iodine, while the disorganisation of the skin proceeds slowly.

(5,) Iodine is also absorbed from iodised cotton wool applied to the skin.

(6,) Even under the most favourable conditions this absorption is too inconstant in amount to be used as a general means of administering iodine.

(7,) Iodoform and iodide of ethyl are absorbed by the healthy skin, the latter in such quantity as to be available, if necessary, for introducing iodine into the system.

REFERENCES.—[1] "Med. Brief," May, 1898; [2] "Lyon méd.," Jan. 9, 1898; [3] "Bull. de l' Acad. de méd.," No. 17, 1897.

IODOFORM SUBSTITUTES.

Iodoform contains about 29 parts of pure iodine in 30. Its antiseptic and deodorising effect is therefore due to this element; the carbon and hydrogen with which it is associated render the iodine non-irritant, either when taken by the mouth or applied topically. A great disadvantage attending the use of iodoform is its disagreeable odour. It is impossible to mask entirely this odour, although it may be covered to a great extent by mixing with it various aromatic substances, such as balsam of Peru, Tonquin bean, coumarin, menthol, thymol, oil of sassafras, otto of rose, oil of peppermint, oil of anise, oil of eucalyptus, carbolic acid, etc. A number of odourless iodoform substitutes have been introduced, some containing iodine, and hence supposed to act like iodoform; and others with no iodine in their composition, but which have a similar action to

iodoform. Many of these substitutes are proprietary articles of German origin.

Iodol (tetra-iodo-pyrrol) stands at the head of the list of iodoform substitutes as regards the amount of iodine present. It contains about 27 parts in 30. Iodol is obtained by precipitating pyrrol with iodo-iodate of potassium. It is a micro-crystalline brownish-white powder, having a faint thyme-like smell, and is soluble in 6 parts of absolute alcohol, but nearly insoluble in water. It is said to produce no toxic action like iodoform when wounds are dressed with it, and its application is painless. Iodol has been used with good results in granular and chronic conjunctivitis, hard and soft chancres, and various ulcers much improve under its use. It possesses some anæsthetic action, and acts as an astringent when discharge is copious.

Losophan (meta-tri-iodo-cresol) contains 24 parts of pure iodine in 30. It is a greyish crystalline powder, soluble in alcohol, chloroform, oils and fats. It has been found to be useful in parasitic skin affections, but not of general value, and it is apt to cause irritation.

Iodo-Salicylic Acid and *Di-Iodo-Salicylic Acid* are iodine compounds of salicylic acid, in which one or two atoms of hydrogen respectively are replaced by iodine. Di-iodo-salicylic acid contains 20 parts of iodine in 30, iodo-salicylic acid 15 in 30. These compounds are powerful antiseptics. They possess the combined action of iodine and salicylic acid, and have been successful in the treatment of acute polyarticular rheumatism where salicylates have failed. These acids are in the form of white micro-crystalline powders, slightly soluble in water, soluble in alcohol, ether, fixed oils, and, like salicylic acid, also in collodion.

Sozoiodol (di-iodo-para-phenolsulphonic acid) is composed of 54 per cent. iodine, 7 per cent. sulphur, and 20 per cent. phenol. It has been combined with sodium, potassium, ammonium, lead, mercury, and zinc, which have been suggested as odourless substitutes for iodoform. The sodium salt which has been used is in colourless shining acicular crystals, soluble in water. The salt is well tolerated as an external application. It has been given internally in doses of 20 grains three times a day. Sozoiodol has been found useful in the treatment of **Whooping-cough**—3 grains blown into each nostril once daily. A solution of sozoiodol-mercury, with iodide of sodium, has been recommended for intra-muscular injection in **Syphilis.**

Aristol (di-thymol-iodide) is a reddish-brown powder containing 45·8 per cent. of iodine. It is insoluble in water, glycerin, or alcohol, but soluble in ether or oils. It has been used successfully in various

skin affections, **Psoriasis, Eczema, Rhinitis, Ozæna,** and **Lupus,** but has proved unsatisfactory in lichen rubra, soft chancre, and gonorrhœa. Aristol has a certain effect on venereal ulcers, but acts very slowly; the only advantage it possesses over iodoform is absence of smell—its activity is inferior.

Europhen (iso-butyl-ortho-cresyl-iodide) occurs as a pale orange non-crystalline powder, containing 28 per cent. of iodine. It possesses powerful antiseptic properties, and, being resinous to the touch, it adheres well to mucous membrane and wound surface, and does not easily cake. A given weight as compared with iodoform will cover a surface five times the area of the latter. It is non-poisonous, and acts only when brought into contact with secreting surfaces, which decompose it and liberate iodine. Its lightness and freedom from odour make it specially useful in dentistry. The general opinion of europhen is that it may be used with advantage in all cases where iodoform has been used. Improvement has followed its use by inunction and subcutaneous injection in **Tubercular Leprosy**, and it has been found serviceable in **Eye Diseases, Otitis,** and **Ozæna.** Europhen has failed in eczema, psoriasis, and gonorrhœa, but has given satisfactory results in simple and **Venereal Ulcers,** and in oily solution injected daily for **Syphilis.**

Loretin (meta-iodo-ortho-oxy-chinolin-ana-sulphonic acid) is a bright yellow crystalline powder, odourless, similar in appearance to iodoform. It is very slightly soluble in water or alcohol, and insoluble in ether, but forms soluble salts with alkalies, except with lime. It is non-poisonous and unirritating, and has been used with marked curative effect on **Burns, Ulcers,** and other **Wounds.**—(See "Loretin.")

Airol, a gallate of bismuth subiodide, is a light greyish-green powder, stable in dry air, but when left in contact with moisture, iodine is gradually liberated. It is insoluble in water, alcohol, and ether. Airol is astringent and desiccative, as well as being antiseptic. —(See "Airol.")

Di-iodoform (ethylene periodide) in yellow crystals almost inodorous, insoluble in water, soluble in chloroform and slightly in alcohol and ether. It is partly decomposed by light. It has been recommended as an antiseptic in place of iodoform.

Antiseptol (iodosulphate of cinchonine). An odourless brown powder, which has been recommended as a substitute for iodoform. It contains half its weight of iodine, and is soluble in alcohol and chloroform, insoluble in water.

Anozol is a mixture of iodoform and thymol.—(See "Anozol.")

The chief non-iodine compounds which have been introduced to compete with iodoform as an antiseptic are dermatol, thioform, and thioresorcin.

Dermatol is a basic gallate of bismuth, recommended as a powerful non-irritant antiseptic and desiccant. Applied to wounds it induces rapid cicatrisation, does not irritate nor give rise to toxic effects. It is less suited to septic wounds and insufficiently stimulating in chronic indolent ulcers. It is a quicker microbicide than iodoform. Its use in the treatment of **Venereal Ulcers** has been successful, and also in **Pustular** and **Diphtherial Conjunctivitis, Corneal Ulcers** and **Pannus,** but of little use in blepharitis. Dermatol is a yellow powder, odourless, and insoluble in water.—(See "Dermatol.")

Thioform, a basic bismuth salt of di-thio-salicylic acid, is a yellowish-brown powder, odourless, and insoluble in water. Its claim to supplant iodoform is based upon its freedom both from odour and from toxic properties, its greater antiseptic strength, and its desiccative action. It freely absorbs secretions from wounds without forming a crust. As a desiccant antiseptic, especially for eye cases, it has been recommended.

Thioresorcin is a combination of sulphur with resorcin. It is a yellowish-white, inodorous, and non-toxic powder, insoluble in water, slightly so in alcohol and ether. As a dusting powder it has been used instead of iodoform, and a 10 to 20 per cent. ointment for **Eczema, Psorlasis,** and other skin diseases.

REFERENCE.—"Brit. Med. Journ.," Sept. 18, 1897.

KRYOFINE.

Phenacetin is chemically para-acet-phenetidin—that is, the acetic acid compound of ethylated para-amido-phenol.

From the researches of Ostwald it appears that the chemical affinities of the alkyl glycollic acids are stronger than of glycollic acid itself, and still stronger than in the case of acetic acid. These considerations led Bischler, of Zurich, to build up a compound related to phenacetin, but containing methyl glycollic (methoxyacetic) acid instead of acetic acid.

This compound is called "kryofine," and it is obtained by heating *p*-phenetidin with methoxyacetic acid at 120°—130° C. Chemically, kryofine is methoxyacetic acid para-phenetidin. It forms white crystals melting at 98°—99° C. In moderate doses it is tasteless, but in doses exceeding 15 grains it produces, after a few moments, the sensation of chewing willow bark. It is soluble in boiling water 1 in 52, in cold water 1 in 600. It is soluble in alcohol, ether, chloroform, and in oils, such as poppy and olive, also in glycerin.

By boiling with caustic potash under similar conditions only 10 per cent. of phenacetin was saponified, as compared with 60 per cent. of kryofine. With hydrochloric acid a similar difference in chemical activity was observed, kryofine being more completely saponified than phenacetin.

Bischler concluded that kryofine would probably be a more powerful antipyretic than phenacetin.

Bresler[1] had an opportunity of trying kryofine in an epidemic of **Influenza**. The subjective troubles were mitigated by the kryofine as well as the fever. Sweating was observed once, and in a nervous, weakly patient cyanosis lasting a few hours was seen after a dose of 15 grains.

Schreiber[2] found kryofine useful as an anti-neuralgic in **Headaches**, which usually disappeared quickly under the use of the drug.

Uræmic headaches and headaches due to syphilis with periostitis were favourably influenced. In cholelithiasis and in trigeminal neuralgia the drug proved useless.

No influence was observed as regards diuresis, even on giving kryofine in large doses, 45 grains daily for several days.

Neither albumin nor sugar was found in the urine as a result of the administration of the drug. The urine darkens very little on standing.

Curtis[3] has used kryofine for about a year. He finds it controls **Neuralgic Pains** in a marked, and sometimes almost magical, manner, and in some persons produces a tendency to sleep. Perhaps its chief value will be as an analgesic. For the adult, 8 grains seem to be the dose giving best results. In only one case did Curtis see any objectionable collateral symptoms. In a case of lobar pneumonia, with very high temperature, 10 grains every six hours produced some cyanosis of the lips and finger-tips, which, however, disappeared in a few hours.

Curtis gives details of ten typical cases illustrating the good results he has obtained with the drug. The cases he mentions include **Follicular Tonsillitis, Influenza, Pneumonia,** and neuralgic pains.

Curtis concludes that kryofine is a prompt and safe antipyretic, unusually free from unpleasant collateral effects, and an analgesic of great power and rapidity of action in all cases of neurotic character. He considers the best method of administration is to give the powder dry upon the tongue.

REFERENCES.—[1] "Therap. Monats.," Oct., 1897; [2] "Deut. med. Woch.," Nov. 4; [3] "Therap. Gaz.," May 16, 1898; "New York Med. Journ.," March 26, 1898; see also Eichhorst: "Kryofin, ein neues Antipyreticum"—"Deut. med. Woch.," No. 17, 1896.

LORETIN.

The chemical composition of loretin is iodo-oxyquinolin sulphonic acid. It is a yellow powder similar to iodoform, and can be used as a substitute for it. Numerous bacteriological experiments have demonstrated that loretin and its salts, even in weak solutions (1 in 1000) exert a destructive action upon the vitality of pathogenic bacteria. It is a completely odourless antiseptic, and produces no toxic symptoms even by prolonged use.

The following results were obtained by Schinzinger, of Freeburg:—

(1,) Loretin has a marked effect upon the process of granulation and the course of healing, greatly surpassing iodoform in this respect.

(2,) Toxic symptoms in no case accompanied the treatment of wounds with loretin.

(3,) The urine investigations undertaken by Ammelburg showed that loretin caused no renal irritation, and that no albumin, blood, sugar, or iodine appeared in the urine of the patients.

(4,) Its antiseptic action is not accompanied by any inflammatory condition in the neighbourhood of the wound; on the contrary, any eczema previously present is quickly dried up.

(5,) Loretin and its salts are odourless, but have the power of quickly removing the offensive smell of all purulent discharges.—(See "Iodoform Substitutes.")

REFERENCE.—"Therapeutist," April 15, 1898.

METHYLENE BLUE.

Achard and Castaigne[1] find that methylene blue is eliminated by the urine, not only in its natural colour, but in a condition of colourlessness which was easily recognised owing to the green colour which it produced when the urine was heated with acetic acid. In certain pathological cases, this colourless chromogen might exist in the urine in an isolated condition. This condition, said the authors, seemed to correspond to a renal trouble. From these facts they concluded that, in a normal condition, the kidneys allowed the blue to pass without difficulty in a natural condition, and then there was formed only a small quantity of chromogen. When, on the contrary, renal permeability was altered, the elimination changed; the chromogen, the diffusability of which was increased, might pass alone and more or less rapidly, according to the degree of alteration.

Harrington[2] reports a case of poisoning by Merck's methyl blue (pyoktanin), which was dispensed for methylene blue. The dose was 3 grains three times a day, and the chief symptoms were purging and vomiting.

REFERENCES.—[1] "Indépend. méd.," Aug. 4, 1897; [2] "Canadian Pract.," July, 1897.

MYDRIN.

Dr. Sydney Stephenson has made a series of valuable observations on this new mydriatic.

The claims of ephedrine hydrochloride as an agent for dilating the pupil have been before the profession for several years, but apparently without attracting anything like general attention. The first communication upon the subject was made by a Japanese physician, Kinnosuke Miura, and this was soon followed by papers from the pens of J. Inouye and A. de Vriese. From these contributions, however, it was clear that the dilatation of the pupil induced by ephedrine was of moderate extent only, although it possessed the great practical advantage of passing off rather quickly (in from one to twenty hours). Later it was found that the action of ephedrine could be enhanced by the addition of a trace of homatropine hydrochlorate in the proportion of $\frac{1}{100}$ of the latter to 1 of the former substance. This observation led Merck to combine the two medicaments. The new agent, which is known as "mydrin," is a white powder, readily soluble in water. Its physiological action has been reported upon by Groenouw in Germany, by Suker in America, by Cattaneo in Italy, and by Simeon Snell in this country. These observers find that a 10 per cent. aqueous solution when dropped into the eye has the power of dilating the pupil moderately within a few minutes, without affecting accommodation in the least. They also agree that the action of the pupil to light is to some extent retained while the eye is under the influence of the drug, the effects of which pass away within from four to six hours. In no instance have they seen any irritation or inflammation result from the application. Groenouw, who experimented on one hundred patients, found that the dilated pupil had an average diameter of 5·6 mm. Suker speaks of mydrin as "an ideal mydriatic for diagnostic purposes." Snell's experiences have been equally favourable.

Stephenson used a 10 per cent. watery solution of mydrin for the purpose of dilating the pupil, when he wished to explore all parts of the fundus oculi with the ophthalmoscope, or to examine the cornea carefully in order to ascertain the presence or absence of slight changes. He noted in twenty patients: in (a,) the near and distant sight, and (b,) the diameter of the pupil. A single drop of mydrin solution (10 per cent.) was then placed in the conjunctival sac, after which the following points were observed: (a,) the time at which the pupils become dilated; (b,) the transverse diameter of the pupils; (c,) the near and distant vision; and (d,) the time at which mydriasis passed away.

The results obtained in this way may be briefly related. The pupil became dilated in a period which varied, according to the individual, from fifteen to sixty-eight minutes, the average of the twenty observations being 29·35 minutes. The mydriasis was found to ensue more speedily if patients kept their eyelids closed after the application had been made. Owing to the fact that the iris did not completely lose its action to light, there was some difficulty in measuring the size of the dilated pupil, the transverse diameter of which ranged from 5 to 7·5 mm., and averaged 6 mm. For a similar reason it was not altogether easy to say with precision when mydriasis had passed away. But in no instance did the maximum time (after full dilatation) exceed four hours, while the minimum stood at seventy-five minutes. The average worked out at 184·84 minutes—that is to say, a trifle more than three hours. In no case did sight, either for distant or near objects, show any alteration when the eye was fully under the influence of mydrin, a remark which applies also to the position of the punctum proximum. Lastly, it is practically important to note that the agent set up neither discomfort nor irritation.

As the result of his observations, the author thinks that mydrin is capable of doing all that is claimed for it—namely that it causes a moderate dilatation of the pupil without involving the function of accommodation. It cannot but prove a valuable agent in the hands not only of the ophthalmic surgeon, but also of the physician, who must often be desirous of exploring the fundus oculi with a dilated pupil.

REFERENCE.—[1] "Lancet," July 2, 1898.

NITRO-GLYCERIN.

Armstrong[1] believes that a contracted state of the arteries produces a condition which tolerates larger doses of nitro-glycerin than when the arterial walls are in their normal state. In six patients with normal hearts and arteries, to whom $\frac{1}{100}$ gr. was administered every hour, headache was produced before the expiration of twenty-four hours. Another patient, with well-marked **Atheromatous Arteries** but no tension, was given by mistake at a single dose 2½ grains of the drug. No discomfort whatsoever followed. In a case of **Asthma** and **Albuminuria** with marked arterial tension without atheroma, the remedy was gradually increased for twenty-five days until 76 grains were taken in the twenty-four hours with marked benefit; at no time did he suffer from headache or any symptom that could be attributed to the action of the drug. In a second case (**Nephritis** with high

arterial tension, but no atheroma) 125 grains were given in the twenty-four hours without unpleasant symptoms.

The author concludes that (1,) The drug is only likely to produce disagreeable effects in cases in which arterial tension is not raised; (2,) When arterial tension is increased the dose should be proportioned to the degree of tension; (3,) In these cases tolerance is rapidly acquired, and by a slight daily increase very large doses can soon be taken with safety, the constant guide being the degree of tension in the arterial wall.

Money[2] states that nitro-glycerin appears to have no toxic effects in infants and small children, even in very large doses. He constantly prescribes 1 minim of a 1 per cent. solution to infants under the age of two years every two or three hours in place of sweet spirits of nitre.

Stewart[3] calls attention to the fact that nitro-glycerin, in common with the nitrites in full doses, partially or completely arrests the oxygen-carrying power of the red corpuscles, producing a condition of methæmoglobin—a condition which cannot but be injurious, and one to the ill effects of which tolerance cannot be acquired. In a case of his own, in which 20 grains were taken daily, a decided dusky hue was produced by much smaller doses. The drug cannot be given immoderately, even though it does not unduly flush the face and cause headache.

REFERENCES.—[1] "Med. News," Oct. 31, 1896; [2] "Lancet," Nov. 23, 1896; [3] "Med. News," Nov. 14, 1896.

OPIUM.

The pharmacology of the opium alkaloids has been investigated by Vámossy,[1] who has worked at their action on the intestinal movements. Morphine was injected into the vein of a rabbit's ear, and the irritability of the intestine and vagus tested, the abdomen having been previously opened under the water bath.

(1,) *Morphine.*—This alkaloid appeared to act by depressing the functions of the centres in the brain. When the morphine was introduced into the intestine, the irritability of the gut was impaired in its corresponding part. The author shows that when the impulses arrive at the intestine, their influence is exerted by paralysing the nerve endings, ganglia, etc., in the intestinal walls. The author could not distinguish any difference between morphine and the tincture of opium.

(2,) *Narcotine.*—The author concludes that narcotine hardly diminishes at all the irritability of the bowel, and therefore possesses no inhibitory action on intestinal peristalsis.

(3,) *Papaverine.*—This alkaloid stands next to morphine in its

hindering action upon intestinal peristalsis, but the author does not think that this property can be made use of in practice owing to its uncertainty.

(4,) *Thebaine* increases intestinal irritability, and hence peristalsis.

(5,) *Narceine*, like narcotine, is also uncertain ; it cannot lessen in any considerable degree intestinal peristalsis.

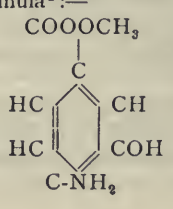
(6,) *Codeine* increases the intestinal irritability, and hence peristalsis.

(7,) *Kryptopin* and *Laudanin* only occur in opium in traces. The author's experiments show that they increase intestinal irritability. Finally, he draws attention to the part played by the suprarenal capsules in respect to the intestinal movements, and maintains that this is a subject worthy of more careful study. The author concludes that opium does not owe its action upon the intestine to alkaloids, which are eventually present only as adjuvants, and that morphine exercises its effect by a local action.

REFERENCE.—[1] " Deut. med. Woch.," July 15, 1897.

ORTHOFORM. *Eugene S. Yonge, M.D.*

Orthoform is a synthetic product, related in constitution to cocaine, which has been introduced by Einhorn and Heinz,[1] of Munich, for the production of local anæsthesia. The introducers desired to find, if possible, the hypothetical molecule of cocaine which would produce local insensibility without accompanying toxic effects. Assuming the double-ring nature of cocaine, it became a question as to whether the peculiar anæsthetic virtue of that drug was dependent on its double-ring nature, on some property of the first ring, or on an influence existing in the hydro-aromatic ring. Certain other aromatic bodies, such as methylene blue, possess the property of relieving pain, and accordingly, Einhorn and Heinz investigated a large number of these substances, with the result that they were led to conclude that all aromatic amid-oxyesters cause local anæsthesia, though in differing degrees of intensity and with varying powers of irritation. A substance (p-methyl amido-m-oxy-benzoic acid) of this class, to which the trade name of "orthoform" has been given, appeared to act most strongly as an anæsthetic and not at all as an irritant. It has the following constitutional formula[2] :—



Orthoform is a white, voluminous, crystalline powder without taste or smell; it is not hydroscopic, and melts at 120° C. Free orthoform combines with hydrochloric acid, forming a hydrochloride which is more soluble than the basis powder, but causes irritation to some mucous membranes on account of its acid reaction. This compound is suitable for internal use, and the dose is 8 to 15 grains daily. Orthoform is a powerful local anæsthetic, where nerve-endings are exposed, and at the same time an antiseptic. Its action is prolonged owing to its slow solubility. The drug is apparently non-poisonous. The writer has introduced ½ an ounce of the powder into the mouth of a man, aged fifty-eight, suffering from mixed tubercular and syphilitic ulceration of the gums, without evil effects; and 700 grains have been dusted on a cancer of the face, in the course of a week, also without any symptoms of poisoning, and with great benefit,[3]

The anæsthetic has practically no effective action on unbroken mucous membrane or skin. The effects last from a few hours to several days, and suppuration is usually diminished and healing accelerated. When applied to the intact mucous membrane of the upper air passages there is slight transient numbness at the point of contact of the drug, and, in the larynx, an ephemeral reduction of reflex irritability.[4] Except in the uterus,[5] neither the free orthoform nor the hydrochloride anæsthetise sufficiently to allow of surgical action. In the case of ulcers, insensibility occurs only where the drug reaches and does not extend into the deeper tissues.

When there is loss of tissue, under various circumstances, the substance acts as follows :—

(1,) *On the Skin.*—If applied to **Burns** of the third degree the anæsthetic effect is very remarkable. Kallenberger[6] has used the drug with success in **Fresh Wounds,** in **Ulcers** of the leg, and in **Carcinomatous** and **Syphilitic Ulcers;** the pain generally disappeared in three to five minutes, after which local insensibility was complete and lasted on an average for thirty-five hours.

(2,) *On the Upper Air Passages.*—The writer[7] has obtained thirty hours' relief in a case of **Tuberculous Ulceration of the Epiglottis** with marked dysphagia. In most cases of **Laryngeal Ulceration** causing pain, there was complete ease for two to five hours and modified comfort for about twelve hours. Frequent applications were found necessary in pharyngeal and laryngeal conditions owing to the removal of the powder, as a result of the friction exercised on the parts by the act of deglutition. No alleviation of pain was obtained in catarrhal angina, in peritonsillitis, or in neuralgia from the pressure of a malignant growth in the oro-pharynx. In a painful syphilitic

Ulcer of the Tonsil, pain was relieved *in toto* for two hours. A case of tender **Intra-nasal Ulcer** was benefited for several hours. In pharyngeal ulceration, orthoform in powder should first be applied, and be followed by the painting on of a saturated solution of the drug in collodion, to ensure its adhesion.

(3,) *In Dentistry.*—Kallenberger[8] found the drug of value in **Caries** of the teeth, when painful nerve-endings were exposed. The powder is introduced into the opening in the tooth, and the aperture closed with wool or wax. The pain after the extraction of several teeth was allayed for twelve hours by filling the sockets with orthoform.

(4), *In Genito-urinary Diseases.*—Neumayer[9] reports two cases of **Urethral Pain** much relieved (after the preliminary burning sensations had passed away) by a 5 per cent. solution of orthoform hydrochloride. In a case of chronic gonorrhœa, quoted by Einhorn and Heinz,[10] a 10 per cent. solution was borne without any reaction, and pain disappeared for twelve hours. In an instance of fresh gonorrhœa irritation followed the use of each injection; but the gonococci and the purulent discharge rapidly vanished.

(5,) *In Gynecology.*—Blondel[11] has employed the drug with success in the discomfort attending **Dilatation of the Os Uteri**, to obviate the **Pain of Curettement,** and in recent painful **Lacerations of the Perinæum** as a result of labour.

Orthoform has also given relief in **Ulceration of the Vulva**, and in **Herpes** of that region.

(6,) *On the Stomach.*—Neumayer[12] reports that ½ grm. gave complete relief, lasting from three to twenty-two hours, in **Ulcer of the Stomach:** ½ gramme gave ease in **Cancer of the Stomach** in one case for twelve hours. There was little or no effect on pains due to chronic gastric catarrh. It is suggested by this author that the drug might be used as a crucial test of the presence or absence of gastric ulceration.

(7,) *In other Conditions.*—Badal[13] finds that orthoform greatly reduces the pain caused by the application of arsenious acid to epithelial cancer, by mixing the former drug in equal quantities with the mineral.

Tchernogoubov[14] has employed orthoform with gratifying results to mitigate the **Pain of Subcutaneous Injections** of soluble preparations of mercury. In a patient with ulcerated **Hæmorrhoids,** which caused her intense suffering during defæcation, the preliminary application of an ointment of orthoform rendered the act painless. The drug has been used with success in certain eye affections;[15] the basis powder, either alone or in solution, is more suitable for ocular work than the

hydrochloride, which is somewhat irritating. The anæsthetic has also been employed in **Hay Fever** with good results.

Orthoform as an Antiseptic.—In several of the writer's cases a rapid diminution of purulent exudation, and a speedy healing of ulcers occurred under the influence of the drug. Pus-formation, in cases of blennorrhagia, has quickly ceased, and gonococci have disappeared in a few days.

Kallenberger[16] concludes that orthoform hinders fermentation and putrefaction. He has found that portions of rabbit's muscle, rubbed in the dust and stood in water at 37° C. for twenty-four hours, rapidly became putrid. A similar piece of tissue treated in the same manner, but freely sprinkled in addition with orthoform, remained sweet at the end of the period named.

REFERENCES.—[1] "Münch. med. Woch.," Aug. 24, 1897; [2] "Manchester Med. Chron.," Dec., 1897; [3] "Lancet," ii., 1897; [4] "Brit. Med. Journ.," Feb. 5, 1898; [5] "Rev. de thérap.," May 15, 1898; [6] "Berlin. klin. Woch.," March 21, 1898; [7] "Brit. Med. Journ.," Feb. 5, 1898; [8] "Berlin. klin. Woch.," March 21, 1898; [9] "Münch. med. Woch.," Nov. 2, 1897; [10] Ibid., Aug. 24, 1897; [11] "Rev. de thérap.," May 15, 1898; [12] "Münch. med. Woch.," Nov. 2, 1897; [13] "Sem. méd.," April 13, 1898; [14] Ibid., March 23, 1898; [15] "Gaz. hebdom. des sci. méd. de Bordeaux," Dec. 19, 1897; [16] "Berlin. klin. Woch.," March 21, 1898.

OXYCAMPHOR.

Oxycamphor is a white crystalline powder, melting between 203° to 205° C. It is soluble to the extent of 2 per cent. in cold water, and more so in hot.

Physiological tests prove it to possess a remarkable power to reduce the excitability of the respiratory centres. It has been employed in **Dyspnœa** by R. Heins and O. Manasse, of Munchen, in doses of 1 grm. (15 grn.), repeated once or twice, if necessary. Where one dose was sufficient, it was usually given at night. The remedy had no ill effect whatever on any organ, even when given in large doses for a long time.

REFERENCE.—[1] "Therap. Beilage der Deut. med. Woch.," xxiii., p. 41.

PROTARGOL.

Neisser[1] regards the ideal treatment of acute **Gonorrhœa** as one by which the gonococci are killed without the mucous membrane being affected, or the inflammation and suppuration increased. Protargol contains 8·3 per cent. of silver, is readily soluble in cold and hot water, and is not precipitated by albumin, dilute sodium chloride, or hydrochloric acid solution, or caustic soda. It has a remarkable penetrative power, and excels the best of previous compounds,

argentamin, in that, although containing more silver, it can be used in solutions up to the strength of 1 per cent. without causing any irritation. It can be used as a bactericide from the very beginning of an attack of gonorrhœa. It has the further advantage that it can safely be left in contact with the mucous membrane for a protracted period, even up to thirty minutes, by which time the sphincter has usually relaxed and allowed the fluid to flow into the posterior part of the urethra.

The author lays down the following rules for treatment with protargol :—

(1,) The gonococcus must first be demonstrated, and it must be ascertained whether the posterior urethra is affected as well as the anterior.

(2,) Systematic injection must be begun at once, the posterior urethra being treated as well, if necessary.

(3,) Injections should be given thrice daily, the first two remaining in five minutes apiece, the third thirty minutes ; if the secretion is considerable this should be changed five or six times.

(4,) After a few days one injection per diem will often suffice, the protargol being replaced for the other two by astringent fluids. As the treatment is painless it can be conveniently continued for three or four weeks if necessary ; even when the gonococci disappear within forty-eight hours the prolonged injections of protargol should be kept up once daily for a week. This is even more necessary when no bacteriological examination is made ; if the treatment is too short by one day the good of weeks may be undone.

(5,) The strength of the protargol solution should be at first $\frac{1}{4}$ per cent., and then increased to $\frac{1}{2}$ to 1 per cent. In chronic cases irritative measures, such as the injection of 1 in 2,000 argentamin may be resorted to ; but here again the penetrative power of protargol renders it most valuable.

Neisser concludes by expressing his belief that this substance is the best, safest, and most rapid remedy hitherto introduced in the treatment of gonorrhœa.

Finger,[2] of Vienna, is convinced of the efficacy of protargol in the treatment of gonorrhœa, and affirms that it is a specific in the acute stage. It gives very little pain when injected, does not produce urethritis, and is efficacious in the destruction of the gonococci. He commences with a $\frac{1}{4}$ per cent. injection, gradually increasing the strength to $\frac{1}{2}$ per cent. In cases of **Urethritis** and **Cysto-Urethritis** he has washed out the bladder with a 1 per cent. solution, and has obtained excellent results.

REFERENCES.—[1] "Centralb. f. Dermatol.," Oct. 1897 ; "Brit. Med. Journ.," Dec. 11, 1897 ; [2] "Med. Press and Circ," Aug. 31, 1898.

PYRALOXIN.

Pyraloxin is recommended by Unna[1] as superior to pyrogallol in skin diseases, because the various inconveniences experienced when using the latter—irritation and staining of the skin—are avoided. Pyraloxin is prepared by exposing pyrogallol to the action of the air and to ammoniacal vapours. It is a deep-brown or black powder, slightly soluble in water, but insoluble in absolute alcohol and in ether. Its advantages have been demonstrated in **Psoriasis** and **Eczema**, by comparative tests with ointments of pyrogallol and those of pyraloxin. It was found that where the former was used, although a cure was effected, the circumference of the lesion became coloured black, and, where the skin was sensitive, became the seat of an erythematous or papulo-pustular dermatitis. On the spots treated by pyraloxin the curative effect was the same, but there was no trace of discoloration or of pyrogallic dermatitis.

REFERENCE.—[1] "Pharm. Ztg.," xlii., p. 565.

PYRAMIDON.

Feuerstein has used this agent as an antipyretic in forty-two cases of phthisis. The single doses consisted of 0·2, 0·3, and 0·6 gm., but the first-named dose was repeated on several occasions. In all the cases the temperature began gradually to come down, reaching its lowest point in about two hours, where it remained for four to six hours, and then began to ascend again. With 0·6 gm. given hourly in 0·2 gm. doses, a complete defervescence could be obtained. After a dose of 0·3 gm., a fall of temperature through 2° C. was observed. After a dose of 0·6 gm. the greatest fall of temperature was 3° C., and the least 1° C. The longest duration of the low temperature was six, and the shortest two hours. The author looks upon pyramidon as a tolerably certain antipyretic. No unpleasant results were produced by it.

REFERENCES.—"Centralb. f. d. ges. Therap.," Oct. 1897; "Brit. Med. Journ.," Nov. 20, 1897.

QUININE.

Schwab[1] states that in every case in which he has given sulphate of quinine as an oxytocic for **Uterine Inertia**, contractions have rapidly come on. He records two cases in detail. In his opinion the drug is a powerful stimulant to the uterine muscle. It is only efficacious, however, during labour, and whilst contractions of the uterus are going on. It will not bring on labour or abortion. The contractions set up by quinine are intermittent, thus preserving their physiological character, and hence there is no additional risk to the mother or child attending its administration. The amount should be not less than 15 grains,

given in two doses, at ten minutes' interval. The effect on the pains is produced in twenty to thirty minutes. It may be prescribed with benefit during the weak pains of the first stage of labour, and more especially in cases of premature rupture of the membranes. The author has also given quinine in cases of retention of the placenta after labour or abortion. In three cases quoted the placenta was expelled a short time after the administration of quinine.

REFERENCE.—"L'Obstetrique.," Feb., 1897.

SAMBUCUS NIGER.

G. Lemoine has succeeded in producing diuresis, when other methods have failed, by an infusion of the bark of this plant. The diuretic properties exist in the second bark, but all attempts to isolate an alkaloid or glucoside have failed, although it has been found to contain valerianic acid, fat and tannic acid. Recent investigations have been made with an alcoholic fluid extract, to which the name sambucinum has been given. This preparation is useful in producing diuresis in **Nephritis** and **Diseases of the Heart and Liver.** It is powerless to relieve the dropsies which accompany cardiac asystole, but when diuresis has been commenced with digitalis or caffeine it seems to continue in large amount. No unpleasant effects have been observed; even in albuminuria it does not increase the renal congestion. It may give rise to a diarrhœa, but this is not objectionable in assisting the evacuation of the œdema. The dose is $\frac{1}{2}$ an ounce.

REFERENCE.—"Bull. gén. de thérap.," 1896, vi. p. 252.

SANOSE.

Schreiber and Walvogel[1] call attention to a new albumin preparation supplied to the clinic at the University of Gottingen.

Sanose is a combination of 80 per cent. casein, with 20 per cent albumose. A combination of these two classes of substances—digested albumin (albumose) and casein—appears especially advantageous, because pure albumose, like meat peptone, forms a peculiar combination with casein. Whilst pure casein on boiling with water gives a sticky caoutchouc-like mass, if well triturated with a fifth of its weight of albumose it loses this characteristic, and a completely suspended milky emulsion is obtained.

Sanose is a white powder, odourless and tasteless, forming an emulsion when stirred with water. It may be administered in the following forms: In milk and cocoa (about 1 to 2 ounces in a pint of milk), in pea-soup (about $\frac{1}{6}$ of an ounce to a plateful), and with Knorr's soup-powder. In none of these forms is sanose observable to the palate, and is therefore taken by patients for a prolonged period without ob-

jection. It may be combined with other foods of easily digestive character. Sanose mixed with lævulose is rather too sweet. A mixture of sanose with maltose, isomaltose, and dextrin, proved very appetising, and it is possible by combining these easily-digested carbohydrates with sanose and an easily digested fat in a gelatin capsule, to supply all the necessary food stuffs.

A good bread may be made with 10 per cent. sanose, and having a total albuminoid contents of 20 to 30 per cent. For patients who object to meat, or to whom its enjoyment is more or less forbidden—as in **Nephritis, Uric Acid Diathesis,** or **Diabetes**—sanose bread will prove an agreeable substitute for aleuronate bread.

The similarity of sanose to milk, and especially to human milk, gives it a peculiar value, for, when sanose is mixed with water, a milk-like liquid is formed. Sanose is easily digested by trypsin, as well as by pepsin-hydrochloric acid at 40° C.

REFERENCE.—[1] "Deut. med. Woch.," Oct. 7, 1897.

SAPONINS.

Pouchet[1] points out that these occur in a large number of plants under a variety of names, as, digitonin, gratiolin, lychnin, githagin, senegin, cyclamin, smilacin, quillajic and polygalic acids. These, which might better be called sapotoxins, differ much in their therapeutic and toxic properties.

The method of preparation also has much to do with their activity; by maceration the plant may yield substances of remarkable toxicity; if isolated by appropriate chemical methods they may be almost inactive. If obtained by the latter method they occur as an amorphous powder, which varies in colour from white to yellow, and is first of a sweetish, later of a bitter, styptic and burning taste. They are soluble in all proportions in water, slightly or not at all in alcohol.

They may be divided into two groups: (1,) Neutral, or (2,) of Acid reaction. The latter are distinguished by their solubility in alcohol and by their marked toxicity. They are all lævogyre, their aqueous solutions form emulsions, and they dissolve without water in such substances as lead sulphide and barium carbonate.

Chemically they are glucosides. Physiologically they act upon the heart, more or less, as does digitalin, but they show in addition an intense action upon the medulla, which manifests itself by convulsions and asphyxia, from which the animals experimented upon die. They are poisons to the central nervous system and to the heart. If given by the mouth their action upon the nervous system is *nil*, but they irritate more or less violently the intestinal mucous membrane, and further, they are caustic. When given hypodermically they determine

death of the tissues at the point of injection. The acid varieties given intravenously produce results differing according to the doses. If these are large, death follows in a few seconds, preceded by convulsions and paralysis of the nervous centres. In smaller doses dysenteric manifestations are present—hyperæmia, bloody extravasations, œdema of the wall of the intestine, hyaline thromboses, necrosis of the mucous membranes.

REFERENCE.—[1] "Amer. Med. Journ.," July, 1898.

SERPENT VENOM.

Prof. Thomas R. Fraser,[1] of Edinburgh, has, during the past year, continued his valuable work on the antivenomous properties of the bile of serpents and other animals. He has shown that when introduced into the stomach of an animal serpents' venom produces no obvious injury, even when the quantity is so large as to be sufficient to kill one thousand animals of the same species and weight if injected under the skin. The failure of so highly toxic a substance to produce poisoning when it is administered by the stomach might be due to chemical changes produced upon it by the secretions of the stomach and intestines, or to non-absorbability into the blood from the stomach and intestines. It is already known that the toxicity of venom is not materially reduced by gastric digestion. Although at first sight incompatible with the innocuousness of stomach administration, this fact is not in reality a contradiction of it, for the absorbing power of the stomach for many organic substances, even for strychnine, has been shown to be extremely slight, and their entrance into the circulation appears to occur not in the stomach but in the intestines.

As serpents' venom introduced into the stomach is not rendered innocuous by the stomach secretions, while, notwithstanding, it fails to cause poisoning, it may be assumed that the stomach walls are incapable of absorbing it also. If, like other poisons, it can be absorbed from the intestines, the explanation of the failure to produce toxic symptoms when it is administered by the stomach might depend on a chemical or physiological destruction of its toxic properties by some substance or substances which it encounters soon after entering the intestinal canal, and most probably, therefore, by the bile or the pancreatic secretion.

To explain the innocuousness of stomach administration fully would accordingly require that the effects on venom of the biliary and other intestinal secretions should be investigated, and also the absorbability of venom through the intestinal walls.

As a contribution to the settlement of the question the author made a number of experiments with the biliary secretion, and found that whatever may be the influence of the other secretions or of intestinal absorption, that of the bile was so decided as to be in itself sufficient to account for the innocuousness of stomach administration.

The bile from the gall bladder of the African cobra, puff-adder, rattlesnake, and grass snake was used, and each bile was tested against the venom of the African and the Indian cobra. The experiments were made by mixing various quantities of each bile with a little more than the minimum lethal dose of the venom, and then injecting this mixture under the skin of the animal. The object of the experiments was not only to determine if the bile can render venom innocuous, but also, if it have this power, what is the smallest quantity of bile capable of doing it.

It was thus shown that the bile of venomous serpents is able, when mixed with the venom of serpents, to prevent lethal doses of the latter from producing death; and that the bile is indeed so powerful an agent in doing this that a quantity actually smaller than the quantity of venom may be sufficient for the purpose. The doses of bile thus shown to be sufficient represent only minute portions of the bile stored in the gall bladder of a serpent; and that a serpent, therefore, has at its disposal enough of bile to prevent injury from venom introduced into the stomach in quantities many times greater than the minimum lethal.

It appeared of interest to examine in a similar manner the bile of innocuous serpents and other animals. All serpents, innocuous as well as venomous, exhibit a resistance against the toxic action of venoms introduced subcutaneously or directly into the circulation, which is not dependent on their being cold-blooded animals. Various facts, some of which are anatomical, tend to show that the innocuous, equally with the venomous serpents, possess poison glands and secrete venom. The former are innocuous only in the sense that they are not normally furnished with weapons of offence in the form of poison fangs. Probably the relative protection against the poisonous action of venom introduced into the circulation, which is common to serpents, is dependent upon an effect produced upon thom by the venom which they all secrete, although in the case of the innocuous serpents only in relatively small quantities.

Experiments were also made with the bile of the ox, as representing those animals which do not secrete venom, or possess any protection against venom introduced into the subcutaneous tissues or into the circulation, while at the same time they are protected against venom introduced into the stomach. It was found that the bile of all animals

is antivenomous, and the difference observed between the potency of the bile of venomous serpents when contrasted with that of ordinary animals suggests that the antivenomous property must be dependent, at least in part, on some specific constituent or constituents present in different quantities in the bile of different animals.

Serpents' bile enters into the composition of the medicines most trusted in for the treatment of snakebite by the natives of Africa. Several specimens of these native medicines were examined, which contain bile along with many other ingredients, such as serpents' heads, dried and powdered with the retained venom glands.

The interest associated with this action of bile is not restricted to its effect on venoms. Analogies in composition would suggest that the same action is exerted upon many of the toxins of disease, a suggestion which also receives support from the further analogy that many of these toxins, such as those of tetanus and diphtheria, while notoriously active when present in the blood, are inert when introduced into the stomach. Even when circulating in the blood, toxins, in common with other organic poisons, are probably being constantly eliminated into the alimentary canal, where they would at once lose their destructive power by contact with the bile, and thereby the total effective quantity of the toxin in the body would be reduced. There are also many poisonous substances generated in the intestinal canal, which in some circumstances produce intoxication. The production of this auto-intoxication may partly be due to the failure of the liver to secrete a sufficient amount of healthy bile, and the therapeutic value of cholagogue substances, so long employed on empirical grounds, may thus also obtain a satisfactory explanation.

Bile is produced in large quantity by all animals, and it is present in the intestinal canal throughout its whole length, but beyond the fact that it is an important excretion, removing waste products from the body, its functions are not known to be of much value. To such recognised functions as the promotion of fat absorption and the laxatic and indirect antiseptic actions, there may be added the additional function of rendering inert many organic poisons introduced into or generated in the alimentary canal. (See also "Introduction" to this section.)

REFERENCE.—[1] "Brit. Med. Journ.," July 17, 1897.

SPHACELO-TOXIN.

C. Jacobi has given the name of sphacelo-toxin to a substance of a resinous nature which he has obtained from ergot, and regards as the specifically active constituent of the drug. It is present in very small

amount, but is extremely potent, and as it is capable of combining with basic neutral or feebly acid substances, Jacobi is of opinion that a small admixture of this substance may be the cause of the activity of the various products that have been extracted from ergot.

In Jacobi's examination of ergot the fat was first separated by treatment with petroleum spirit, and the residue extracted with ether. The concentrated ether extract mixed with petroleum spirit deposited a yellow precipitate, which was purified by solution in ether and re-precipitation with petroleum spirit, and then had the characters of Kobert's sphacelic acid. From the ethereal extract precipitated by petroleum spirit, acetic acid extracted a basic substance of considerable activity, leaving an inactive yellow substance. An ether solution of the base mixed with some alcohol and with petroleum spirit until it became turbid, deposited crystals that were quite inactive, but adhering to them were some particles of resin which had a very powerful action. This resinous substance is Jacobi's sphacelo-toxin, and the yellow substance he calls ergo-chrysin, the inactive crystalline base secaline, the active yellow substance chrysotoxin, the active amorphous basic substance secalintoxin.

Sphacelo-toxin is readily decomposed in the free state, but durable when combined with either ergo-chrysin or chrysotoxin. Chrysotoxin is obtained by precipitation from the ether extract of ergot (after separating fat) with petroleun spirit. It is a yellow powder, without smell or taste, readily soluble in ether, chloroform, alcohol, or benzene, insoluble in water, long contact with alkalies, it is converted into an inactive acid—ergo-chrysinic acid.

Secalintoxin was obtained by shaking the ether solution of the first precipitation by petroleum spirit with dilute acetic acid. On addition of sodium carbonate gray flocks separated, which could be obtained in the state of an almost colourless powder that was nitrogenous, freely soluble in alcohol, acetic ether, benzene or chloroform, less soluble in ether, and insoluble in petroleum spirit.

Ergo-chrysin is physiologically inactive. Secalin is crystallisable, freely soluble in chloroform, sparingly in ether, alcohol, or benzene, almost insoluble in petroleum spirit, water, dilute ammonia, or alkaline solutions. It is physiologically inactive.

Jacobi suggests that Tarnet's ergotinin may be a compound of the crystallised inactive base with sphacelotoxin, and that this substance might be combined with Kobert's cornutin, so as to produce the action peculiar to both constituents.

STROPHANTHUS.

Wilcox records some clinical observations on the use of strophanthus; the preparation used was a 5 per cent. tincture made from strophanthus hispidus (var. Kombé).

The indications for the use of this drug are :—

(1,) Rapid recurrence of **Cardiac Systole** with diminished force and irregular rhythm.

(2,) **Bright's Disease,** when associated with permanent high arterial tension, and also the conditions of arteriosclerosis and senile rigidity of arteries.

(3) Any condition where diuresis is required and can be promoted by increased blood pressure.

Further, in any of the conditions where a drug of similar action is required, strophanthus is to be preferred if the symptoms are urgent, or if the administration of the drug is likely to be prolonged, for it acts very rapidly, and when given in suitable dose, does not disturb digestion.

Strophanthus is to be avoided in cases with advanced degeneration of the myocardium or with extreme mechanical obstruction to the circulation from valvular incompetence or stenosis.

It was found particularly useful for corpulent persons and for children, and also in **Chlorosis, Anæmia, Irritability of the Heart,** and **Senile Vertigo** from **Cerebral Anæmia.**

Sphygmographic tracings taken in twelve cases show within one hour after administration of the drug strengthening of the pulse, the line of ascent changes from nearly horizontal to almost vertical, the line of descent suddenly falls, the dicrotic wave disappears, and the irregularities and inequalities almost always cease. The author considers that strophanthus has this definite advantage over digitalis, namely, greater rapidity of action, more powerful diuretic effect, absence of digestive disturbance, absence of cumulation, the drug does not lose its effect with continuous administration, greater value in children, greater safety in the aged. The drug must not, however, be used in large doses, nor with frequent repetition. The dose recommended is ♏v, which should not be given more than three or four times per diem.

REFERENCE.—"Amer. Journ. of Med. Sci.," May, 1897.

SULPHOBORIC ACID.

Gatschkowski has prepared an acid possessing properties which he hopes destine it for a wide range of purposes. It may advantageously replace sulphuric acid, because its use is not dangerous. It has all the properties of sulphuric acid, but its action is slower. It may be

used in electric piles and accumulators. It is made as follows: 150 gms. of sulphuric acid are poured, as slowly as possible, and with constant stirring, on 150 gms. of pure boric acid. The paste thus formed is left at rest for two or three days, when it becomes as hard as stone. It is then broken up, crushed and triturated, with the slow and continuous addition of 450 gms. of sulphuric acid, when a milky liquid is obtained, which is heated until it becomes clear. It is then ready for use.

REFERENCES.—"Bull. Com.," xxv., p. 283; "Amer. Med. and Surg. Bull.," Oct. 10, 1897.

TANNALBIN.

Dr. William Henry Porter[1] states that this drug is nothing more than a highly dehydrated tannin albuminate. In the stomach its free administration will often arrest the superabundant outpouring of mucus. It augments the digestive powers, not directly, but by removing some of the factors which are causing the indigestion. It also precipitates the mucus, thus destroying one of the favourable media for the growth of the micro-organisms. In this manner it aids in overcoming the super-acidity of the contents of the stomach. In the acute diarrhœal affections of children, and particularly in those instances in which there is a large outpouring of mucus, it has proved efficient. In chronic affections it is the most serviceable, but attention to diet and the use of artificial aids to digestion must not be omitted.

REFERENCE.—[1]"Post Graduate," No. 11, p. 647, 1897

TANNIN.

Murrell[1] points out that in sweating of the feet, salicylic acid or boracic acid, dusted into the socks, is usually more efficacious than belladonna. For sweating of the axillæ the following formulæ will be found useful:—

(1,) ℞ Tannin grs. xx, Pure Terebene ʒij, Absolute Alcohol q. s. ad ʒss.

(2,) ℞ Tannin grs. xx, Oil of Pumilio Pine ʒij, Absolute Alcohol q. s. ad ʒss.

Either of these may be used freely night and morning, or as often as may be found necessary.

REFERENCE.—[1]"Med. Brief.," Jan. 1897.

TENALINE.

Tenaline is a new preparation recently prepared from the areca nut, with the object of retaining the tæniafuge alkaloids of arecaine, arecaidine, and guvacine, and getting rid as far as possible of the very toxic principle known as arecoline.

F. Hobday,[1] Prof. of Therapeutics, Royal Veterinary College, London, has been able to observe its effects and test its efficacy in

sixty cases of animals, and concludes that it is certainly of great value as a vermifuge, especially for tape worm, in the dog and cat. It has the advantage over powdered areca nut of being much easier to administer as its bulk is small, and a purgative is not a necessary adjunct. Its effect on ascarides is also well marked, as they either are vomited or expelled with the fæces. Its action on the bowels is to increase secretion and stimulate peristalsis, so that even if no worms be present an animal which has received a full dose passes liquid evacuations. Above all, its general effect seems invariably to be to cause expulsion of the head as well as the segments, thus getting rid of the most troublesome part of the parasite.

With reference to dose, that recommended is an allowance of 1 minim for each pound of body-weight, and it is also advised that it should be administered alone, or with the addition of a little water. The latter was found to give the best results, the addition being made of an equal amount or rather more. That the results are better when water is added, especially where small doses of the medicine are prescribed, may be explained by the fact of its being necessary to give a sufficient quantity of fluid to reach and come in direct contact with the worm which is lying in the intestine. Although 1 minim for each pound of body-weight is usually sufficient, Hobday's observations show that this amount can be doubled with perfect safety. The only noticeable effect was vomiting, temporarily increased peristaltic movement of the bowels, accompanied by colic, and the passage of liquid fæces; there was no after results, except dullness and slight diarrhœa. (See "Arecoline.")

REFERENCES.—1" Journ. Comp. Path. and Therap.," Dec., 1897; "Brit. Med. Journ.," Feb. 26, 1898.

THIOL.

Wirz[1], of Kaisersesch has employed thiol in place of ichthyol in many cases, and has had ample opportunity to convince himself of its excellent qualities. As a substitute for ichthyol it seems especially welcome when used on the face, as it is odourless. Patients who could not bear the smell of ichthyol improved under the use of thiol.

In inflamed conditions the analgesic properties of thiol surprised him. It can be used, he says, in inflammations of every description. Infiltrations are resorbed without the formation of pus, making incision unnecessary. In severe **Carbuncles,** after removal of the pus, thiol allayed inflammation when applied around the wound on the infiltrated parts, and pain ceased entirely. This was observed in all inflammatory processes where thiol was used after the removal of the pus. **Lymphangeitis,** even **Phlegmons** caused by panaritium, **Insect Bite,** and

other causes, quickly disappeared under thiol treatment. Inflammation of the face caused by decayed teeth, erysipelatous infilration of the scalp and face, and severe infiltration of the neck which took on a serious aspect owing to œdema of the glottis, gradually disappeared under constant application of thiol. In a case of general **Furunculosis** in a child, he directed painting thiol over every furuncle, and soon a complete cure resulted.

In five cases of **Parametritis** he has had good results with plugs soaked in thiol and distilled water, equal parts. In a severe case of parametritis and perimetritis accompanied by great abdominal pain, high temperature, and rapid pulse, he had better results with ichthyol, as applications of thiol did not completely allay the pain, while ichthyol induced complete recovery. Cases of **Otitis Externa** he has treated with thiol plugs with complete success. No other remedy has rendered him such good service against severe pains in the back after influenza. Patients experienced relief by rubbing thiol over the whole vertebral column. Patients with **Emphysema** accompanied by marked dyspnœa were relieved as soon as thiol was rubbed on the chest. Pains in the muscles of the thorax ceased, expectoration became easy, and dyspnœa and catarrh improved. In **Pleuritis Exsudativa** as well as **Pneumonia Crouposa** thiol was of great service, either alone or together with veratrine and potassium-iodide ointment, against pain in the chest. Several patients said that this ointment benefited their condition more than caffeine, camphor, hæmatogen, etc. Wirz has come to the conclusion, therefore, that we possess in thiol an agreeable substitute for ichthyol, odourless, cheap, and efficient.

REFERENCES.--"Deut. med. Woch.," July 1, 1897.

THYROGLANDIN.

Dr. W. MacLennan,[1] of Glasgow, has recommended this with a view to having a thyroid preparation of definite strength.

It is prepared by the following chemical process :--

(1,) Selected and healthy glands are macerated in cold water, which extracts the soluble iodoglobulin. This solution is decantered or filtered off, and is evaporated to dryness at a temperature of 212° F. The resulting product is reduced to a fine powder.

(2,) The residual glands are then boiled for one hour with a weak solution of caustic soda which eliminates the thyroiodin. After filtration the solution is exactly neutralised with hydrochloric acid, evaporated to dryness, and powdered.

(3,) The two powders so obtained (iodoglobulin and thyroiodin) are mixed together and constitute thyroglandin.

It will thus be seen that this new preparation is made in such a way

that thorough sterilisation is secured, and that it is freed from everything deleterious which might be derived from the other animal substances of the gland, while it contains the iodoglobulin and thyroiodin in the form and in the proportion in which they exist in the gland.

Thyroglandin keeps perfectly, if kept thoroughly dry, without deterioration. It may be administered in capsule or in tablets, and in doses of 3 to 5 grains, which are equal to half a gland of average size and weight.

The very active therapeutic properties which are exhibited by thyroglandin lead the author to believe it is a preparation of great value.

REFERENCE.—1"Brit. Med. Journ.," July 9, 1898.

THYROID GLAND.

The results of several series of researches on the influence of the thyroid body on nutrition are recorded. These researches are calculated to modify the opinion generally entertained in regard to the value of this organ. It is usually accepted that removal of the thyroid body leads to nervo-muscular disturbances, to tremors and twitching of muscle and tetanus, and to nervous depression and stupor. It is believed, too, that a substance—iodothyrin—produced by the thyroid body possesses an antitoxic action, so that its administration as a medicine is capable of supplying the loss of the gland.

Munk[1] has shown that this doctrine is untenable. It is true that ablation of the gland is often followed by serious indisposition and by death, but, on the other hand, more than 50 per cent. of monkeys and rabbits and 25 per cent. of dogs and cats remain unaffected by the operation.

H. J. Berkley[2] has investigated the various lesions induced by the action of thyroid extract on the cortical nerve cells. The first portion of the investigation was made upon patients in an insane asylum. In each case a pill containing 5 grs. of fresh sheep's gland was administered daily, which was subsequently increased to two or three, depending upon the results. There was loss of weight, tachycardia, and enfeeblement of the cardiac action in each instance, with increase of cutaneous transpiration, irritability, and more or less mental and motor excitement. This occurred in all cases, no matter how depressed or demented the patients had been previous to the administration. One patient died before the excitement had subsided, with evidence of acute tuberculosis, and the others showed an œdematous condition of the integument of the forehead and cheeks similar to that observed in myxœdema. All showed more or less restlessness, with both mental and motor excitement, and in some instances there was considerable mental improvement, though not in all.

H. Gideon Wells[3] finds that when the thyroid preparations are administered to animals experimentally or to man therapeutically, effects are produced which can be separated into two classes :—

(1,) *Nutritional* : The process of metabolism throughout the body undergoes a marked change, which is best shown by the urine. This is considerably increased in quantity, it contains a greater amount of urea, as well as chlorides and phosphates. At the same time the weight of the subject diminishes, particularly if it be above normal because of fat deposition. This decrease in weight is constant and considerable, and Wendelstadt has been able to demonstrate that but one-sixth of the loss can be attributed to the nitrogenous compounds as shown by the increased nitrogen content of the urine, the rest being due to loss of water and of the fat itself through oxidation.

(2) *Nervous* : Of these the most prominent clinically is the palpitation of the heart, which is a certain indication that the dosage has been carried too far. With it come headache, nausea, and vomiting, and if the remedy be pushed still farther the pulse and heart weaken to a dangerous degree. Sometimes glycosuria is produced, which can be attributed to some action on the diabetic centre, since it may develop into a true diabetes melitus.

Of five hundred and eighty-four cases of simple goitre about 82 per cent. were relieved.

Exophthalmic goitre generally becomes much worse under this treatment, and the patient is relieved on its cessation. In obesity this failed to produce some improvement in but six of one hundred and forty-five cases. This, however, is not permanent, except in a few instances, unless the patient adheres to a system of dietetics and exercise. In all probability, the benefits of this treatment are due to the increased metabolism in the tissues, producing the same results as vigorous and general exercise —*i. e.*, a burning up of the superfluous carbonaceous materials in the body. In **Insanity** it seems to be of value as a cerebral stimulant when the higher cortical cells are anergic after attacks of acute insanity ; but its use is conceded to be dangerous in acute mania and melancholia. Of skin diseases, **Scleroderma** offers a more favourable field, and improvement in all cases, but no cures, are reported in **Lupus.**

Robert Hutchinson[4] points out that under thyroid administration there is a great rise in the amount of oxygen taken in, and a very considerable, but relatively not so great, increase in the amount of CO_2 given out. The obvious inference is that the thyroid leads to a greatly increased consumption of the body fat.

Briefly, then, it may be said that the effect of the administration of

the thyroid is to increase oxidation in the body ; it makes the tissues as it were, more inflammable, so that they burn away more rapidly. The products of the disintegration of the nitrogenous tissues appear in the urine almost entirely in the form of urea, uric acid, and the xanthin bases, being neither regularly nor appreciably increased, while the products of the fat destruction are eliminated as carbonic acid by the lungs, and water by the kidneys. It is important to note the large increase in the excretion of water which occurs under thyroid administration. Diuresis is often one of the first effects of the drug, and a considerable proportion of the very sudden fall of weight, which is often to be observed at the outset of a course of thyroid treatment, is to be attributed simply to loss of water. Thyroid feeding seems to make the tissues drier. On cessation of the treatment this loss of water is very quickly replaced, and is accompanied by a corresponding increase in weight.

The occurrence of glycosuria as a result of thyroid administration has frequently been observed, and recent experiments tend to show that the glycosuria may be of the alimentary type.

Increased rapidity of the heart's action is perhaps the most constant of the effects observed from thyroid administration. The action of the drug can hardly be said to be manifested, unless the pulse rise by 10 or more beats per minute. Along with increased rapidity one often observes other disturbances of the heart's action during thyroid administration, such, for example, as irregularity, palpitation, or even threatenings of failure.

It has been found that the active part of the thyroid has no effect on the blood pressure. The fall of blood pressure which occurs when decoctions of the gland are injected is mainly due to the action of organic extractives, and a similar fall follows the injection of extractives from other glands, or of a weak solution of Liebig's extract of meat. It has further been shown that these bodies do not affect the blood pressure at all, if they are administered by the mouth instead of by intravenous injection. Notwithstanding this experimental evidence, the sphygmometer shows a slight fall of blood pressure in patients who are under the influence of the thyroid. The fall seems to be due to enfeeblement of the heart rather than to any peripheral dilatation of blood vessels.

The effects of thyroid administration upon the blood have been studied both clinically and experimentally. It would seem, that small doses of thyroid produce no effect on the blood of healthy persons, while large doses cause an increased destruction of blood corpuscles just as of other cells. In myxœdema on the other hand, the stimulus

which thyroid feeding gives to all growth and division is manifested in the blood by a rise in the number of the corpuscles.

The active constituent of the thyroid appears to be excreted entirely by the kidney.

R. Hutchinson has prepared some of the new liquor thyroidei according to the directions given in the "Pharmacopœia," and finds that it contains about 4½ per cent. of colloid matter. An ordinary dose of the latter is about 0·1 gm., and that would be contained in about 37 minims of the liquor. The dose of the latter recommended in the "Pharmacopœia" (5 to 15 minims) is too small, and would better have been given as 15 to 60 minims.

Whatever the preparation employed experience seems to show that it is best to give it in small doses and frequently, rather than in large quantities at longer intervals.

REFERENCES.—[1] "Lancet," Jan. 29, 1898; [2] "Johns Hopkins Hosp. Bull.," July, 1897; [3] "Journ. Amer. Med. Assoc.," 1897, vol. xxix., pp. 897, 954, and 1107; [4] "Brit. Med. Journ.," July 16, 1898.

TOX-ALBUMINS.

Dr. C. R. Marshall[1] points out that the general tendency of modern physiology, both animal and vegetable, has been towards the establishment of a physiology of the cell, and a similar conception is entering into the domains of pathology and pharmacology. Although, morphologically, the cell has been regarded as the unit since the days of Schleiden and Schwann, physiologically it has received but tardy recognition. This is apparently due to the fact that physiology has been mainly confined to investigations on the functions of organs in the higher animals, and before a cellular physiology of these could be established it was necessary that these functions should be known. Even now there is much to be done in this direction. But independently of physiological investigations in the higher vertebrates, a physiology of the lower forms of life has arisen, and, by forming the basis of a general physiology, bids fair to rival even its more illustrious sister.

In pharmacology, using the term in its widest sense, it is even more necessary than in any other biological science to accept the cell as the physiological unit of the body. The action of drugs in nearly all cases can be reduced to a chemical or physical effect upon individual cells, and it is the sum total of these actions which produces the beneficial or obnoxious effect which we note in the organism. This action and reaction is, of necessity, greater in some tissue-cells than in others, as the composition of the cells varies within certain limits, and thus a preponderating effect, or so-called selective action results.

The conception of a selective action should not, however, be carried too far, as it leads to too narrow a view of the action of medicines. Once within the system and dissolved in the serum of the blood, a drug must bathe all tissues, and if the metabolism of the constituent cells is such as to permit a reaction, some modification must necessarily ensue. In some cases these subordinate reactions may become very marked, and unexpected ill-effects or after-effects may result.

This general conception of the action of poisons has recently been approached from the pathological side. The idea of bacteria as the immediate cause of disease has gradually given place to the more reasonable view, that it is the metabolic products of these organisms which act. This, the so-called toxic doctrine of disease, brings pathology to the level of pharmacology, and together it seems not improbable that they will succeed in establishing a more accurate view of the mode of action of poisons in general.

Dr. Simon Flexner[2] has used the tox-albumins of the diphtheria bacillus and the streptococcus, both singly and combined, the toxin of the cholera vibrio and the phytalbumoses ricin and abrin. The animals used were rabbits, guinea-pigs, and mice, and the mode of injection was subcutaneous, intraperitoneal, and intravenous. A most exhaustive description is given of the macroscopic and microscopic changes in diphtheria poisoning and acute ricin and abrin intoxication, and with these are summarily compared the lesions in experimental streptococcus intoxication, combined diphtheria and streptococcus poisoning, experimental cholera-vibrio intoxication, and chronic ricin and abrin intoxications. The work, although of the greatest scientific interest, has not yet reached that stage at which its practical application, from the point of view of therapeutics, is a possibility.

REFERENCES.—[1] "Practitioner," April, 1898; [2] "Johns Hopkins Hosp. Reports," vol. vi., 1897.

TRAUMATOL.

Tison recommends this compound as an antiseptic superior to iodoform, and almost free from odour. It is obtained by the action of iodine on cresylol with iodo-cresine. Its colour is violet, and it is insoluble in water, ether, and chloroform, and but feebly soluble in oils. It is a bactericide, and as an application answers well for **Cutaneous Ulcers** and **Eczema.**

The author finds that it is a safe agent for antisepsis of the intestines, and that it is tolerated in **Diarrhœa, Dysentery, Typhoid Fever,** and **Tuberculosis.** The dose is 3 grains in a pill, given four times daily. (See "Iodoform Substitutes.")

REFERENCE.—"Progrès méd.," Sept. 11, 1897.

TRIONAL.

Goldmann[1] finds that trional is preferable to sulphonal. Its action is much more rapid and certain. It does not accumulate in the system as does sulphonal, and it does not irritate the kidneys and intestines in its elimination. Full doses of it are not so apt to produce hæmatoporphyrinuria as are full doses of sulphonal. The author believes that trional is a harmless hypnotic.

REFERENCE.—[1] "Journ. de méd. de Paris," Jan. 31, 1896.

TUBERCULIN (New Preparation of).

A great deal of excellent work has been done in connection with the comparative study of the physiological effects of different products extracted from cultures of Koch's bacilli, and the treatment of **Tuberculosis** by artificial serums has also received a considerable amount of attention. Many investigators have endeavoured to obtain tuberculin free from certain injurious substances which it contains, and Koch himself to some extent succeeded in this with his well-known TR.

Arloing and Grunard[1] worked on somewhat different lines. A culture of tubercle bacilli in broth was filtered on porcelain, so as to separate the bacilli from the broth. The filtered broth was next divided into two parts, one of which was reserved for further treatment. The first half exactly represented Koch's first tuberculin; the authors designated it by the name of TA; a second tuberculin (TB) was obtained by the washing and decoction of the bacilli left on the filter. The second half of the filtered broth was treated with alcohol. The substances thus precipitated yielded a third tuberculin (TC). Lastly, the broth, freed from the substances precipitable by alcohol, furnished a fourth tuberculin (TD).

The physiological effects of each of these four products were studied on dogs, the injections being made into the jugular or mesenteric veins. TA proved extremely virulent, killing one thousand times its weight of dog. This tuberculin has in a very high degree the property of dilating vessels; it accelerates the pulse, lowers arterial tension, and produces elevation of temperature and gastro-intestinal phenomena—nausea, vomiting, diarrhœa, dysentery—of great intensity. TB is very slightly toxic, and causes only slight slowing of the heart. TC is slightly febrigenic. TD dilates vessels, and excites the heart to a slight degree. If these results are compared with those furnished by the study of the products obtained up to the present by modifying Koch's original tuberculin, it will be seen that TR has as its chief physiological action the power of slowing the pulse, and from that point of view it recalls their TB.

Blache finds that injections of artificial serum are well borne by tuberculous children, there never being any febrile reaction. If the pulmonary lesions are not very markedly improved, the general condition is, at all events, favourably modified. The author recommends this treatment as useful and absolutely harmless. He does not think that artificial serum is a trustworthy diagnostic agent.

Sirot thinks that injections of artificial serum can be employed as a means of deciding a doubt as to the existence of tuberculosis. In doses of 20 c.cm., it causes in an adult who is the subject of the disease a thermic reaction as characteristic as that of tuberculin; unlike the latter, however, it is quite harmless.

Hutinel finds that in many tuberculous subjects the injection of artificial serum is followed by transient rise of temperature; this effect is, however, seen to a less degree in patients with other diseases, and cannot, therefore, be regarded as pathognomonic. He points out that injections of artificial serum are not altogether innocuous, though less so than injections of tuberculin. He had seen in children and in adults several cases in which they had been the starting point of inflammatory pneumonia.

Hager,[2] in a preliminary communication, relates his clinical experience of Maragliano serum in the treatment of tuberculosis. A great advantage of the serum treatment over tuberculin is that it does no harm even in advanced cases of tuberculosis. The reports on the value of this serum have been generally favourable. The author confirms the statement of Maragliano that the serum may have a favourable action on all the specific symptoms of tuberculosis. The serum exercises no effect on the tubercle bacillus itself, but neutralises the products of this micro-organism. Of cases of advanced **Phthisis** treated within a year, only one succumbed to the disease. The author discusses the action of the serum on **Lupus.** It can be painted on the patch, and yet produce its beneficial results. It produces a swelling of the lupus tissues, and in a few days retrogressive changes are noticed. The neighbouring lymphatic glands become swollen. Three or four paintings suffice if the lesion is not too extensive. The cicatricial changes develop speedily under this treatment. A simultaneous injection of the serum hastens the recovery. It is possible that Maragliano's method of obtaining the serum may be improved upon, and thus a more efficient serum produced.

REFERENCES.—[1] "Report of Congress of Tuberculosis," Paris, 1898; "Brit. Med. Journ.," Aug. 20, 1898; [2] "Münch. med. Woch.," Aug. 3, 1897.

UREA.

In the "Medical Annual" for 1898 (page 10) a hint was thrown out that possibly urea might be found useful as a diuretic, and it was added that there was no doubt as to its activity, and that no bad effects followed its administration in even large doses.

Klemperer, in an address on the treatment of **Hepatic Cirrhosis,** strongly recommends urea as a diuretic. He advises that recent ascites should be treated by means of diuretics, and not by tapping, the former being, in his opinion, a more efficient and lasting method. He records at length two cases of recent liver cirrhosis with ascites which he treated with urea. In both cases the urine rose rapidly, the ascites disappeared, and the result was as satisfactory as can be in such cases. He has also used urea in the uric acid diathesis, stone in the kidney, and uric acid gravel, following the example of Rosenfeld.[2] It dissolves up uric acid freely, and is superior to piperazin and lysidin in these cases. He gives it up to 150 and 300 grs. daily, and there are never any unpleasant symptoms caused by its use. Klemperer is of opinion that, being the natural diuretic, its action is very much more favourable when the kidneys are intact than when they are diseased. He advises its use in **Ascites** and **Dropsy** when not of renal origin. In forty-two cases of stone in the kidney he has found that it is an excellent solvent for uric acid. He gives it simply dissolved in water, or in the following combination :—

℞ Urea, Sodium Bicarbonate, Calcium Carbonate, āā ʒj
Sig.—Half teaspoonful four or five times daily.

It may also be given in **Gouty Subjects** with lumbar pains, when both its solvent action on urates and its diuretic effects do good.

Kohn[3] has not been able to form so high an opinion of the value of urea. He attended to Klemperer's advice only to give it in cases where the kidneys are healthy. He treated in all ten cases—four of hepatic cirrhosis with ascites, two pleurisy with effusion, one pericarditis with effusion, one tubercular ascites, one ascites from carcinoma, and one ascites from cardiac disease—giving daily 75 to 375 grs. In each case the daily amount of urine and its specific gravity were carefully ascertained, and a comparison of the effects of urea and of other diuretics, such as diuretin, digitalis, calomel, and sodium salicylate, was made on the same patient. Kohn finds that its action as a diuretic is uncertain, and that where it acts it does so by stimulating the secreting mechanism of the kidney. It has no unpleasant effects. In three of the above-mentioned cases there was a marked increase of the urine, but in the others it failed to act ;

while digitalis, diuretin, calomel, and sodium salicylate, all increased the urine more decidedly.

Bettmann[4] has also tested Klemperer's results clinically. He treated twelve cases—three liver cirrhosis with ascites, four pleurisy with effusion, and five of other serous exudations—but in none were the results more than moderate; 150 to 300 grs. urea were given daily in water, and the results are tabulated. The rise of urine in some cases was slight, in others it was completely absent, and in the former it was not enduring. In most of the cases up to 6 ozs. of urea altogether, and in one up to 18 ozs., were given without causing any unpleasant symptoms in the patients.

Von Noorden[5] states that in cases of general cardiac dropsy he has used urea in daily amounts of 90 to 150 grs. with excellent results, as regards an increase of diuresis.

REFERENCES.—[1] "Berl. klin. Woch.," 1896, and "Deut. med. Woch.," Leipzig, 1896; [2] "Centralbl. f. klin. Med. Bonn," 1895, S. 28; [3] "Ztschr. f. Heilk.," Berlin, 1896, Bd. xvii. S. 395; [4] "Berl. klin. Woch.," No. 49, 1896; [5] "Real. Encyclop. der Gesamm. Heilk.," 1897.

UROTROPIN.

Leopold Casper finds that this substance does not dissolve uric acid. After the entrance of urotropin into the organism some is decomposed into formaldehyde. It was found that the former was always detected in the urine and sometimes in the blood; the latter sometimes in the blood, and generally in the urine. The reason of this is probably that there is a combination of formaldehyde with albuminous substances in blood or urine, so that its presence cannot be determined. As to the elimination of urotropin and formaldehyde, both are found after ten minutes have elapsed since its administration. Fourteen days after the last dose the urine of a patient showed both substances; generally, the period of elimination is shorter. Clinical reports show the value of this remedy in **Phosphaturia**, severe ammoniacal **Cystitis,** and long-standing severe **Pyuria.**

REFERENCE.—"Monats. der Krank. des Harn und Sexual Apparates," No. 1, S. 1, 1898.

XEROFORM.

This is a light, fine yellow, slowly soluble powder, which is a compound of bismuth and tribromphenol.[1]

Paschkis[2] has used xeroform in a number of cases of **Eczema,** and other forms of skin disease with breach of surface, and **Ulcers** of various kinds. The following was the mode of employment: After cleaning the surface of the sore with dry cotton,

the powder was lightly dusted over the surface. When necessary, a light dry gauze dressing was placed over the powdered surface, the whole being fixed with a bandage. **Burns** and excoriated places in eczema were treated in the same way. In some of the latter cases the use of the powder was supplemented by the application of an ointment or Lassar's paste.

Rynders[3] has subjected xeroform to a thorough investigation, chemical, physiological, and clinical. He finds that is an ideal intestinal antiseptic. In the stomach it undergoes only slight changes, but in the intestinal canal it is gradually decomposed into tribromphenol, which possesses great antiseptic powers, and bismuth oxide, which unites with the ptomaines or their toxins, forming with them insoluble substances. A small percentage of the tribromphenol is excreted with the urine, and the bismuth oxide is removed with the fæces. Its toxicity is exceedingly slight.

Doses of 8 grms. (2 drachms) have been given to guinea-pigs, but from 2 to 3 grms. (30 to 45 grn.) are sufficient for a thorough antisepsis of the intestinal canal in an adult.

The usual dose is 5 decigrammes (8 grn.) four times a day. It may be given in wafers, or in a gum-arabic emulsion. Injurious effects on the digestion have not been observed. The author calls attention to the deodorising power which xeroform exerts on the stools of typhoid patients.

REFERENCES.—[1] "Med. Ann.," p. 67, 1898; [2] "Wien. klin. Runds.," Oct. 17, 1897; [3] "Aerzt. Rund.," vii., No. 44, p. 694.

SUMMARY OF THE PRINCIPAL ALTERATIONS IN THE NEW PHARMACOPŒIA.

COMPILED BY MR. FRANK A. ROGERS.

ALTERATIONS IN STRENGTH.

DRUG.	ALTERATION.	DOSE.
Aqua Chlorof. ...	Half former strength ...	
Dec. Granat. Corticis	Double former strength ...	½ to 2 ozs.
Emplast. Menthol ...	Somewhat weaker	
Ext. Bellad. Alcoholicum	About one-third former strength	¼ to 1 gr.
,, Nucis Vomicæ ...	About two-thirds former strength	½ to 1 gr.
,, Opii Liquid. ...	·75 per cent. Morphine. Same strength as Tincture ...	5 to 30 ♏
,, Physostigmatis ...	One-fourth former strength	¼ to 1 gr.

Drug.	Alteration.	Dose.
Infus: Caryoph. ..	Length of maceration decreased, and strength slightly altered	½ to ℥j
,, Cascarillæ ...		½ to ℥j
,, Chiratæ ...		½ to ℥j
,, Ergotæ ..		℥j to ℥ij
,, Rhei		½ to ℥j
,, Serpent. ...		½ to ℥j
Inj. Apomorph. Hypod.	1 grain in 110 ♏	5 to 10 ♏
,, Morphinæ Hypod.	Made with *Tartrate*, about half former strength ...	2 to 5 ♏
Lamellæ Cocainæ ...	Four times former strength	
Liniment Sinapis ...	Slightly stronger	
Lin. Terebinth. ...	Contains less turpentine ..	
Liquor. Epispasticus	Double former strength .	
Pilula Phosphori ...	Double former strength ...	1 to 2 grs.
Spirit. Cajuputi ...	5 times former strength ...	5 to 20 ♏, except Juniper. 20-60 ♏
,, Cinnam. ..		
,, Juniperi ...		
,, Lavand. ...		
,, Menthæ Pip.		
,, Myrist. ...		
Suppos. Morphinæ	Half former strength ...	
Syr. Ferri Iodidi ...	1 grain Ferrous Iodide in 11 ♏	℥ss to ℥j
Syr. Zingiberis ...	One-third stronger	
Tincturæ	Uniform dosage	½ to fl.℥j
,,	*except Aconit., Bellad., Chlorof. et Morph., Cocci, Colchici Sem., Gelsemii, Lobeliæ Æthereæ, Nucis Vom., Opii, Podoph., Scillæ, Stramonii, Strophanth.*	5 to 15 ♏
,,		
,,		
,,		
,,		
Ung. Acidi Borici ...	Slightly weaker, now nearly 10 per cent.	
,, ,, Carbolici	Slightly weaker, now 4 per cent.	
,, Acidi Salicylici	Weaker. now 2 per cent. ...	
,, Aconitinæ ...	Stronger. 2 per cent. Crys. Acon.	
,, Atropinæ ...	Slightly altered, now 2 per cent.	
,, Belladonnæ ...	Stronger, now nearly ·6 per cent. total alkaloid ...	
,, Cantharidis ...	Slightly weaker, now nearly 10 per cent.	
,, Creasoti ...	Slightly weaker, now 10 per cent.	
,, Eucalypti ...	Half strength	
,, Gallæ ...	Slightly stronger	
,, ,, c. Opio	Slightly stronger, now 7½ per cent. opium	
,, Hydrarg. Co.	Slightly weaker, now 19½ per cent. mercury	
,, ,, Nit. Dil.	Weaker, now 20 per cent. strong ointment	

Drug.	Alteration.	Dose.
Ung. Hydrarg. Oxidi Rub. ...	Slightly weaker, now 10 per cent.	
,, ,, Subchlor.	Slightly weaker, now 10 per cent.	
,, Plumbi Acet.	Slightly stronger, now 4 per cent.	
,, ,, Carb.	Slightly weaker, now 10 per cent.	
,, ,, Iodidi	Slightly weaker, now 10 per cent.	
,, Staphisag. ...	About half former strength	
,, Sulphuris ...	Half former strength, now 10 per cent.	
,, ,, Iodid.	Weaker, now 4 per cent. ...	
,, Veratrinæ ...	Stronger, now 2 per cent. ...	

ALTERATIONS IN COMPOSITION.

Drug.	Alteration.	Dose.
Acetum Impecac. ...	Made from Liq. Ext. 1 in 20	10 to 30 ♏
Aq. Camph.	Now made with Spt. Camph. 1-1000	
Conf. Sulphuris ...	Glycerin added	
Emplast. Ballad. ..	Made with Liquid Extract	
,, Calefaciens	Ol. Myrist. omitted ..	
,, Picis ...	Ol. Myrist. omitted ...	
,, Resinæ ...	Hard Soap *vice* Curd Soap	
,, Saponis ...	Hard Soap *vice* Curd Soap	
Extract. Ergotæ ...	Ergotin	2 to 8 grains
,, Euonymi Sicc.	Contains some Calc. Phosph.	1 to 2 grains
,, Nucis Vomicæ	5 per cent. Strych. ⅔ old strength	¼ to 1 grain
,, Physostig. ...	¼ strength	¼ to 1 grain
,, Sarsæ Liq. ...	1 in 1. Glycerin added ...	℥ij to ℥iv
Glycerin. Boracis ...	Water omitted	
Inj. Apomorph. Hypod.	1 grain in 110 ♏. Slightly acidified	5 to 10 ♏
,, Ergotæ Hypod.	Practically 1 Ext. in 3 ...	3 to 10 ♏
,, Morphinæ Hypod.	Made with *Tartrate*, about half strength 1885 ..	2 to 5 ♏
Liniment. Ammoniæ	Almond Oil added	
,, Saponis ...	Soft *vice* Hard Soap . .	
,, Sinapis Co.	Mezereon omitted	
Liquor. Atropin. Sulph.	Preserved with Salicylic acid	½ to 1 ♏
,, Hyd. Perchlor.	Ammon. Chlor. omitted ...	
Lotio Hydrarg. Nig.	Glycerin and Mucilage of Tragacanth added ..	
Mist. Ammoniaci ...	Syrup Tolu added	℥ss to ℥j
,, Creosoti ...	Acid Acetic Glacial omitted	℥ss to ℥j
,, Cretæ	Tragacanth *vice* Acacia ...	℥ss to ℥j

Drug.	Alteration.	Dose.
Mist. Guaiaci	Tragacanth *vice* Acacia ...	℥ss to ℥j
,, Ol. Ricini ..	Altered and improved ...	
,, Sennæ Co. ...	Sal Volatile added	
Pil. Aloes et Myrrh ...	Saffron omitted	
,, Ferri	Sod. Carb. Exsic. *vice* Pot. Carb.	
,, Phosphori ...	Altered slightly	
Pulv. Cretæ Aromat.	Saffron omitted	
,, ,, ,, c. Opio. ...	Saffron omitted	
Syrup Limonis	Tincture fresh peel added ...	℥ss to ℥j
Tinct. Chlorof. et Morphinæ Co. ..	Strength increased. (See Tinctures)	
,, Rhei	Saffron omitted, Glycerin added	
Troch. Bismuth, Co.	Carbonate *vice* Subnitrate ...	
Ung. Creosoti ...	White paraffin basis ...	
,, Plumbi Acet. ...	,, ,, ,, ...	
,, ,, Carb. ...	,, ,, ,, ...	
,, ,, Iodid. ...	Yellow ,, ,, ...	
,, Resinæ	Slightly altered	
,, Zinci Oleat. ...	White paraffin basis ...	
Vinum Ipecac. ...	1 in 20 Liquid Extract ...	
,, Quininæ ..	Made with Quinine Hydrochloride	
Ext. Aloes Barb. ...	*vice* Ext. Aloes Soc. in Dec. Aloes Co. and Ext. Coloc. Co.	
The Bases of Lozenges	are altered	
,, ,, ,, Ointments	are in most cases altered ...	
Ext. Bellad. Virid. = Lin. Iodi	Ext. Bellad. B.P. 1885 .. is now called Liq. Iodi Fortis	

ADDITIONS.

Drug.	Alteration.	Dose.
Araroba	Purified Goa Powder ...	
Aurantii Cortex Recens.		
Benzol		
Bismuth. Salicylas ...		5 to 20 grains
Caffeinæ Cit. Effervescens	4 per cent. Citrate	℥j to ℥ij
Caoutchouc		
Carbon Bisulphidum	Purified	
Cocaina	The pure alkaloid	
Codeinæ Phosphas ..	Soluble 1 in 4 Aq.	¼ to 2 grains
Ext. Belladonnæ Liq.	Used for making other Belladonna preparations ..	
Ext. Ipecac. Liq. ...		Expect., ½ to 2 ♏, Emetic, 15 to 20♏

Drug.	Alteration.	Dose.
Ext. Jaborandi Liq. ...		5 to 15 ♏
Ext. Nucis Vomicæ Liq.	1·5 per cent. Strychnine ...	1 to 3 ♏
Ext. Strophanthi ...	A powder with Sacch. Lactis	¼ to 1 grain
Glycerinum Acidi Borici		
Glycerinum Pepsini ...	5 grains in ℥j	℥j to ℥ij
Hydrarg. Oleas ...		
Hyoscinæ Hydrobromidum		$\frac{1}{200}$ to $\frac{1}{100}$ grain
Hyoscyaminæ Sulphas		$\frac{1}{200}$ to $\frac{1}{100}$ grain
Inf. Scoparii	Replaces decoction	℥j to ℥ij
Kaolinum		
Lamellæ Homatropin.	$\frac{1}{100}$ grain in each	
Liquores Concentrati: Calumba, Chiretta, Cusparia, Krameria, Quassia, Rhubarb, Senega, Senna, and Serpentary ...	Introduced to fill the need for concentrated infusions ...	Each, ℥ss to ℥j
		℥ss to ℥ii
Liquor. Ethyl Nitritis	3 per cent. Ethyl Nitrite ...	20 to 60 ♏
,, Hamamelidis	Distilled from Witch Hazel leaves	
,, Hydrogen Peroxidi ...	10 vols.	℥ss to ℥ij
Liquor. Morphinæ Tartratis ...	1 grain in 110 ♏	10 to 60 ♏
,, Pancreatis ...	Made from fresh pancreas ...	
,, Picis Carbonis	Alcoholic solution with Quillaia	
,, Sarsæ Co. Conc.		℥ij to ℥j
,, Thyroidei ...		5 to 15 ♏
Lithii Cit. Effervesc. (5 per cent.) ...		℥j to ℥ij
Morphinæ Tartras ..	A very soluble salt	⅛ to ¼ grain
Naphthol (Beta Naphthol)		3 to 10 grains
Oleum Pini	From Pini Pumilionis *vice* P. sylvestris	
Oleum Rosæ	Otto of Roses	
Paraffin Liquidum ...	Colourless paraffin oil ...	
Physostigminæ Sulphas	Sulphate of Eserine ...	$\frac{1}{60}$ to $\frac{1}{30}$ grain
Pil. Quininæ Sulphatis		2 to 8 grains
Pix Carb. Præparata		
Pruni Virginianæ Cortex		
Quillaia Cortex ...		
Quin. Hydrochloridum Acidum	Very soluble in water ...	1 to 10 grains
Salol (Phenyl-salicylate)		5 to 15 grains
Spt. Anisi (1 in 10) ...		5 to 20 ♏
Strychninæ Hydrochloridum		$\frac{1}{60}$ to $\frac{1}{15}$ grain

Drug.	Alteration.	Dose.
Suppos. Acid. Carbolici	1 grain Phenol in each ...	
,, Belladonnæ ...	1½ grain Ex. Bellad. Alc. in each	
Syrup. Aromaticus ...		3ss to 3j
,, Calcis Lacto-phosphatis ...		3ss to 3j
,, Cascaræ Aromaticus		3ss to 3ij
,, Codeinæ ...	¼ grain in 3j	3ss to 3ij
,, Ferri Phosph. c. Quin. et Strych.		3ss to 3j
,, Glucosi ...		
,, Pruni Virg. ...	Replaces treacle	3ss to 3j
Terebenum		5 to 15m
Thyroideum Siccum...		3 to 10 grains
Tinct. Ergotæ Ammoniata	1 in 4	3ss to 3j
,, Pruni Virginianæ		3ss to 3j
,, Quillaiæ ...		3ss to 3j
Troch. Acid. Carbolici	1 grain Phenol in each ...	
,, Gum. Eucalypt.	1 grain Red Gum in each ...	
,, Guaiaci Resin.	3 grains Resin	
,, Krameriæ ...	1 grain Ext. Krameria ..	
,, ,, et Cocainæ	1/10 grain Cocaine added ...	
Ung. Aq. Rosæ ...	vel Cold Cream	
,, Capsici	A rubefacient	
,, Cocainæ ...	4 per cent. of Alkaloid ...	
,, Hydrarg. Oleati	25 per cent. Mercuric Oleate	
,, Hyd. Oxid. Flav.	10 grains to 3j	
,, Paraffini ...	A mixture of hard and soft paraffin	

NOTABLE ALTERATIONS IN NOMENCLATURE.

Old Name (1885).		New Name (1898).
Ergotinum	=	Ext. Ergotæ
Inject. *Ergotini* Hypoderm. ...	=	Inject. *Ergotæ* Hypoderm.
Lin. Camph. *Co.*	=	Lin. Camph. *Ammon.*
Lin. Iodi	=	*Liquor* Iodi *Fortis*
Liq. Cocain. *Hydrochlor.*	=	*Inject.* Cocain. *Hypoderm.*
Pil. *Asafætidæ* Co.	=	Pil. *Galbani* Co.
Tinct. Chlorof. et Morph. ..	=	Tinct. Chlorof. et Morph. *Co.*

Practical X Ray Work.

By R. NORRIS WOLFENDEN, M.D., Cantab.

In this short article I propose to give practical directions which will be useful to those readers of this "Annual" who desire to enter upon this class of work. Within the limits of a short article it will not be desirable to discuss the many interesting scientific problems centred around this subject.

As a proper equipment of apparatus is essential, we will first describe as briefly as possible the necessary instruments.

The Induction Coil.—Of the methods of transforming the low potential of a supply current into the high potential necessary to obtain X rays, the induction coil must occupy the foremost place. The Wimshurst machine might be employed for the same purpose, and in this case a great deal of annoyance and trouble connected with batteries or other supply of electricity would be dispensed with. But very little work has been done with this machine as yet, though, from what I have seen, I have no doubt that it is excellent for screen work and the minor applications of the new method. The induction coil, however, holds the first place. The size of the coil must be suited to the work undertaken, and also chosen with a view to the expenditure. No coil giving less than a 6-inch spark will be of great service in medical or surgical work, though it will serve perfectly well for the examination of the lesser members of the body. For good all-round work, or in hospital practice, a 10-inch spark coil will serve most purposes. The higher the vacuum of a focus tube, the greater the potential required at the secondary terminals of the coil and the greater the penetrative qualities of the X rays produced. It is doubtful if coils of 20-inch spark length present any superiority in medical or surgical work over a well-made 10-inch or 12-inch spark coil.

In nothing more than in the choice of a coil is the advantage more obvious of obtaining an instrument of the best possible workmanship. In cheaply-made coils, especially some of foreign manufacture, the insulation is so imperfect that they readily break down. In these the secondary* is often wound with bare wire, each layer being insulated

* It is presumed that every reader is familiar with the construction of an induction coil, or can make himself so by reference to almost any text-book of physics.

from the next merely by paraffined paper. The danger of internal discharge is therefore very great. The method of winding and effective insulation are two important matters which mark the superiority of a well-made English coil over the cheaper ones. In the former, the secondary is insulated from the primary by an ebonite tube, and the secondary is also wound in sections with di-electric discs at intervals. Each section being insulated by a solid di-electric, there is only a comparatively small potential difference between adjacent sections. If the insulation were to break down, it is thus easy to remove the faulty section for repair. The ends of the secondary wire are brought to two ebonite *discharging pillars* mounted on the baseboard of the coil.

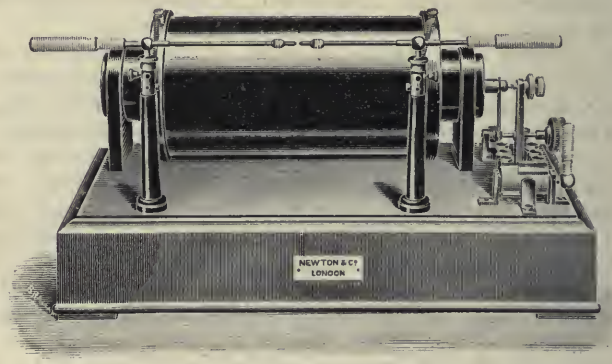


Fig. 1.—Induction Coil.

A well-made English coil guaranteed to work at a tension of, say, 10 inches (*Fig.* 1), will always be capable of working at a higher tension. Thus a 10-inch spark coil will give 12 inches or even more, and an 18-inch will give 20 inches or over, but it would not be desirable to push the coil to this excessive overstrain, except occasionally. In moderate sized coils the baseboard contains a *condenser*, proportioned to the size of the coil. This consists of a number of layers of tinfoil insulated from each other by paraffined paper. This is essential, acting as a reservoir for the "extra current" flowing at the make which, were there no condenser, would seriously impair the secondary induced current. The sparking at the contact breaker is reduced to a minimum, and by the condenser the secondary discharge is converted into an intermittent high tension current flowing in one direction only. The baseboard, in coils up to 10-inch spark length, also has a *commutator* or current reverser, which is a switch con-

trolling the supply, cutting it off, or putting on, or reversing the direction of the current. The form of *interrupter* to be used will be referred to subsequently. The reader can derive much profit from the study of a little book lately written by Lewis Wright, "The Induction Coil in Practical Work," which should be in the hands of every worker with induction coils.

The care of a coil is important. It should not be used for greater currents than will be indicated by the maker. It should not be kept in too warm a place. Either of these causes may break down the insulation. It should also be protected from damp, dust, and the acid fumes of a laboratory. Wright states that Apps recommends varnishing the ebonite with paraffin wax dissolved in benzol as a protection against sea damp ; or rubbing now and again with a little strong soda on wool, afterwards rubbing with dry wool. The screw terminals should be kept clean and free from dust and dirt. The platinum contacts on the interrupter should also be kept clean, and when they become roughened they should be filed with a flat file, otherwise sparking will occur. These platinum points are gradually used up : much sparking burns them away quickly. When, during use, the hammer gets hot and "jams," the current should be immediately turned off, or there will be serious injury to the coil, and probable breaking down of insulation. When there is much sparking and sputtering at the interrupter, this should be immediately corrected by adjustment of the tension screws. Excessive sparking combined with a poor current of diminished spark length at the secondary terminals, indicates piercing of the condenser. Each time the current is reversed, the dischargers should be re-set. On some coils a point is used for the positive discharger, and a disc or knob for the negative. In the Apps-Newton coil both dischargers are points. With a 6-inch coil, four or five storage cells, *i.e.*, 8 to 10 volts, will be sufficient ; with a 10-inch coil, up to 12 volts ; and with an 18-inch coil, up to 16 volts. More may be used for occasional work. The conducting wires should be No. 12. Those from the secondary terminals to the focus tube should never be bare, and should be well out of the way of contact with the person. They should not be approached too closely while the current is passing. Presenting any metal, or even wet or damp hands, will draw a spark. Similarly the coil should not be approached too closely. As a safeguard against accident it is better to have the commutator detached from the base board and placed independently. With large coils this is absolutely necessary. It is a safe rule never to approach too near the focus tube, the coil, or the conducting wires without having first switched off the current at the commutator.

Bearing in mind the high potential at the secondary terminals of an induction coil, every precaution should be taken against giving or receiving a shock. The receipt of the full discharge from both terminals of a large coil might be fatal, and even from one terminal of a 10-inch coil would be highly unpleasant, and in certain cases dangerous.

A new induction coil said to be of great efficiency has just recently been introduced by Rochefort & Wydts. In this, while the primary resembles that of an ordinary induction coil, the secondary consists merely of a single bobbin of fine wire placed midway on the primary and supported by a wooden block. The whole is enclosed in a glass cylinder, filled with a special insulating paste of hydro-carbon, which will not carbonise under high voltages. They thus dispense with the great amount of secondary wire, and owing to the small resistance of the secondary, very heavy spark discharges are obtained. A very large percentage of energy is wasted in every induction coil of the old pattern.

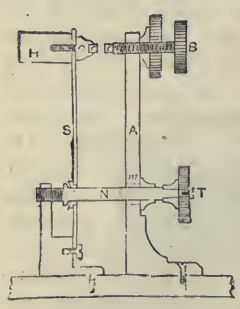


Fig. 2.—Apps' Interrupter.

The contact breaker is an essential part of the coil. The form most generally used is Apps' interrupter (*Fig.* 2.)

The spark between *C*-*C* has two adjustments—one of length by the screw *B*, and the other of rate. By turning *T* to the left, *N* is screwed back and the spring *S* is tensioned up. A stronger magnetic pull is required to drag *H* away from contact, the spark being slow. By turning *T* and *B* to the right, rapid and small currents can be obtained from a large coil. By screwing up *T* and adjusting *B*, a large and thick spark may be obtained. With this interrupter suited to the size of the coil, it is possible to obtain wide gradation of power and rapidity of interruption. According as the coil is being used for screen or photographic work, there will be a difference required in the illumination of the tube. As with the screen a continuous illumination is required, great frequency of interruption will be necessary.

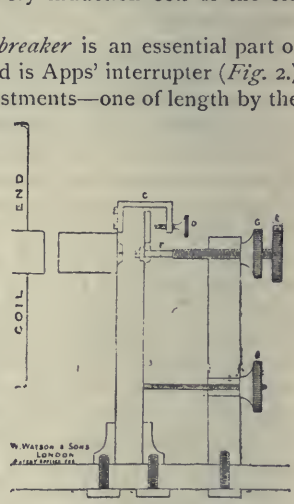


Fig. 3.—Vril Interrupter.

The thick, heavy discharges of great penetrative power would produce an unbearable flickering on the screen.

The *Vril Interrupter* (Watson & Sons) (*Fig.* 3) is an excellent mechanical interrupter for coils up to 10 inches. The number of interruptions can be controlled, and there is required with it a much smaller expenditure of current. It can be readily understood from the figure.

Mercury contact breakers are often employed, especially when slow and heavy discharges are required. One much used is Max Kohl's vibrating interrupter (*Fig.* 4), run by a small motor. It is fitted with a

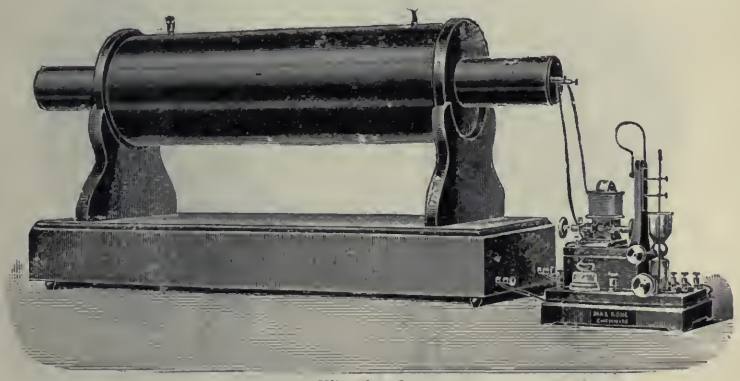


Fig. 4.—Vibrating Interrupter.

tachymeter or dial which permits the reading of the number of interruptions per second, and is therefore very accurate. I have done, and have seen excellent work done, with the old Foucault interrupter on a 10-inch coil, which consists of a brass arm dipping on platinum wire into a cup of mercury, the other end being attracted to the core of the coil whenever it is magnetised. The number of interruptions can be fairly regulated by moving the brass ball up or down the vertical rod, and rapid and thin, or slow and "thick" discharges can be obtained at will. A modification of this old form of interrupter is now made by Messrs. Newton, and is figured on next page (*Fig.* 5).

The great objections to mercury interrupters are the rapid oxidation of the mercury and frequent explosion from sparking, if the layer of fluid covering the mercury is not thick enough. It is necessary to cover the surface of the mercury with a very thick layer of alcohol or oil as a di-electric, and the mercury requires frequent cleaning, by passing through wash leather. The best form of mechanical inter-

rupter is by no means yet determined. A large double hammer interrupter, worked by a motor, has been made by Apps for the author and for Dr. Macintyre, for use with a 20-inch coil. On the whole the author would give a decided preference for some form of mercury contact breaker.

A contact breaker of some form is essential with every coil in addition to the spring-hammer interrupter, especially for photographic work of the deeper structures.

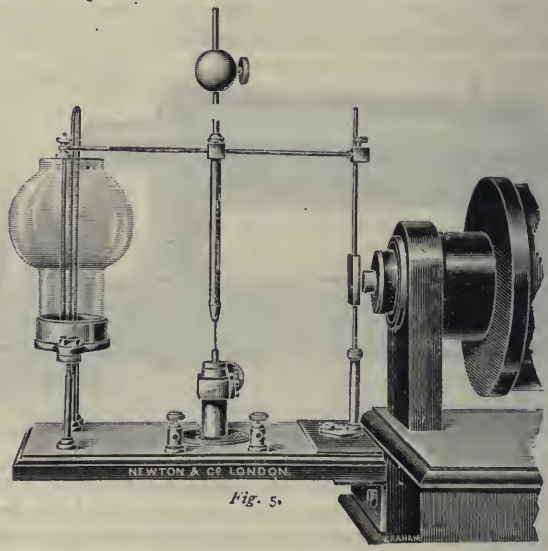


Fig. 5.

Focus Tubes.—X rays originate in a vacuum tube at the place where the stream from the negative pole (cathode) first strikes a solid obstacle. This may be the glass wall of the tube, or a metal disc. In the original tubes this anti-cathode* consisted of the glass wall of the tube opposite the cathode. But with a tube of this simple kind the rays were too greatly dispersed, and radiograms produced were shadowy and wanting in definition. However, an ordinary incandescent lamp can be utilised in this manner by suitably exhausting the vacuum and attaching to the tube two tinfoil terminals, positive and negative. The first effective tube, upon

* The anode, or place where the cathode rays first strike a solid obstacle, was first called the "anticathode" by Prof. S. Thompson. It is a term now generally employed.

the model of which all others have been subsequently constructed, was that of Herbert Jackson (*Fig.* 6). In this the anti-cathode is formed of a platinum plate placed at an angle of 40° opposite the cathode. This anodic plate is frequently called the radiator. Its distance from the cathode is important, being a little beyond the focal point of the rays and not the actual focus, for these cathodic rays after having converged to a focus continue in a straight line, and do not diverge when the vacuum is sufficient. The impact remains a

Fig. 6.—Diagram of Jackson's Tube.

point, and the shadows produced are sharp and the definition perfect. These phenomena are well seen in the appended diagram of a focus tube during exhaustion, taken from a paper by Campbell Swinton, who has made the subject of the physics of the focus tube peculiarly his own. This paper will be frequently referred to in the remarks which follow. From the appended diagram (*Fig.* 7) it will be observed that when the vacuum in the tube is low, the rays converge to a focus and then diverge again. With increase in the height of this vacuum this divergence becomes less and less, until with a certain vacuum the cathode rays are continued in a straight line. They form a hollow cone which can be seen by using carbon discs for the anti-cathode, and they are given off not from the whole surface of the cathode cup, but only from a ring-shaped portion, the diameter of which is less and less the higher the degree of exhaustion. With the cathode rays given off as at 1V, the X rays are then in their most penetrative form.

While the focus tube is undergoing the process of exhaustion attached to a pump, it is observed to go through several different stages (Sylvanus Thompson). At a very low vacuum the earliest phosphorescent gleams appear upon the wall of the tube, but none

are seen on the screen. Prolonged exposure of a photographic plate will, however, give an image of easy subjects. As indicating what may be done, the author obtained one of the best radiograms, of a star-fish an inch thick, he has ever got, by the use of a little coil capable of giving only ½-inch spark, used to excite a vacuum tube made for a spark of six inches. There was only the faintest illumination of the tube, and positively no illumination of the screen. As exhaustion of a tube proceeds further, there is a sudden increase of

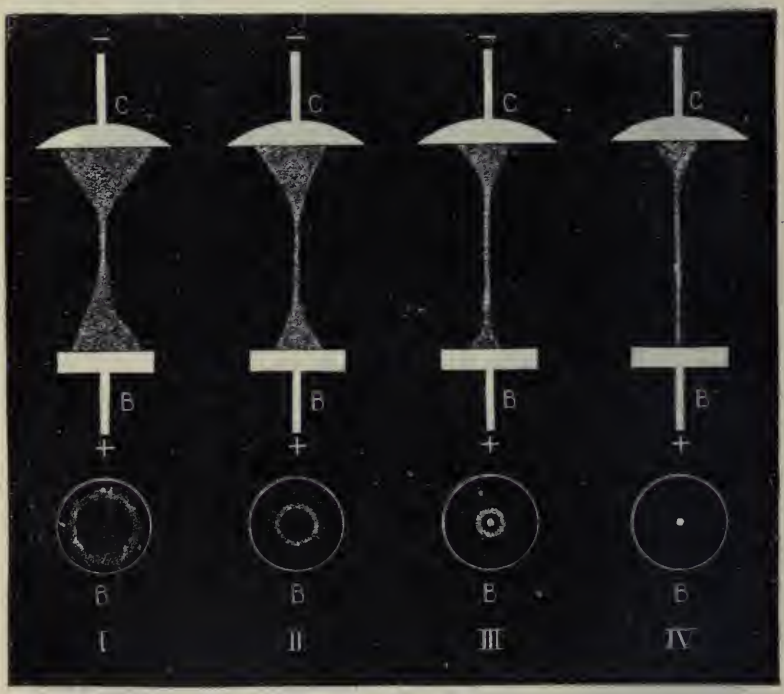


Fig. 7.—Diagram from Swinton's Paper in "Archives of the X Ray."

resistance within the tube, and X rays are produced sufficient to penetrate the fluorescent screen. With further exhaustion the whole tube fluoresces, except in a line in the plane of the anode, and as exhaustion proceeds, the part in front of the anode is brightly lighted, that behind becoming less so until it is quite dark, and the tube is then in good condition for work. When this is the case, the whole of the

tube in front of the plane of the anode should present a delicate apple green colour without a trace of blue or magenta light, all behind the anode (anti-cathode) being dark. If the hand be placed against a fluorescent screen during the process of exhaustion of the tube, it is seen that while at a low vacuum all is opaque, as the exhaustion increases the flesh becomes transparent, the bones remaining opaque, until with increase in the vacuum, these become so transparent and the penetration of the X rays is so great, that all contrast between bones and flesh is lost.

The "penetrative value" of the X rays depends upon the applied E.M.F. and the quantity of X rays produced upon various factors in the tube, to the elucidation of which Campbell Swinton has largely contributed. The best results are obtained by constructing the anti-cathode of metals of the highest atomic weight. This is, however, not the penetrative value, which is found by Swinton to be independent of the material of which the anti-cathode is constructed. Theoretically, iridium would form the most efficient anti-cathode, but it, like thorium and thallium, is commercially unobtainable. Mercury, lead, and gold being too easily fusible, platinum having an atomic weight of 194, and a high fusing point, is chosen for the anti-cathode. The cathode cup is usually made of aluminium, and the platinum disc of the anode is commonly backed on an aluminium plate. "The precise distance between the cathode and anti-cathode is not of much importance, provided the degree of exhaustion is suitable, and provided that the anti-cathode is beyond the focal point at which the convergent cathode rays meet together at low exhaustions" (Swinton). The anti-cathode should not, however, be placed too far beyond the focus, or sharpness in the image will be diminished and a higher exhaustion of the tube will be requisite to get penetrative X rays. The distance between cathode and anti-cathode having a considerable effect upon the resistance of a tube and the character of the X rays produced, an adjustable tube, *i.e.*, one by which the distance between cathode and anti-cathode can be regulated at will, has been devised by Swinton. Theoretically, this would permit rays of any desired penetrative power being obtained, without altering the degree of exhaustion. The size of the cathode cup has an effect upon the penetrative value of the X rays in any given vacuum. With a large cup the rays produced are of very poor penetration as compared with a small cup, and the resistance of the tube is much less with a large than with a small cathode. There is, therefore, no advantage in extra large cathodes, even when the exhaustion is made to suit them (Swinton). These points may be demonstrated in a tube containing two cathodes.

Another form of adjustable tube has the cathode made movable to the extent of ½ an inch, being contained in annexe blown on one side of the glass bulb. When the cathode is very near the glass all round and as far away from the anti-cathode as possible, the X rays produced are altered from their highest to their lowest penetrative value.

The surface of the cathode should be well polished, and the cup should be of absolutely even curvature. Good and accurate workmanship is of the greatest importance for the production of a good tube. The glass should be as uniformly thin as possible, and the cathode and anti-cathode should be placed axially to produce accurate focussing (Swinton). The leading-in wires should not be too small, or when they are overheated they may crack the glass. The terminals should be substantial, and a long distance apart to avoid sparking. This is aided by an accumulation of dust on the tube. The anti-cathode should be of a sufficient mass not to readily overheat, which would produce perforation or distortion. Practically, though this impairs the use of the tube, it does not destroy it. It is well to remark that tubes of foreign manufacture will generally not bear the strain of English-made tubes, and will frequently not bear the tension for which they are sold. Blackening of a tube occurs gradually after much use. This arises from a deposit of platinum upon the glass, and is caused by overheating of the anti-cathode by passing currents of too great intensity through the tube. It gradually impairs the use of the tube. Perforation and distortion of the platinum disc also occurs from overheating or too intense currents. Tubes which have been in use for some time show a gradually increasing resistance whereby the ordinary current will no longer pass, and the tube has to be manipulated to bring it back into working order. The object is to lower the vacuum, and this may be accomplished by several devices. The tube may be warmed by a spirit lamp or Argand or Bunsen burner. The heat should be applied to the part of the tube behind the cathode, switching the current off while the heat is applied, then withdrawing the lamp, and allowing the current to pass. Gradually working the tube up in this manner, and with patience often for an hour, will bring the vacuum down till the tube is in good working order. Care must be taken not to heat the glass too greatly, or it may be made to burst. It is not well to do as some workers, viz., to keep waving the spirit lamp round the tube while the current is passing. A great deal of sparking occurs, during which the operator receives numerous shocks, and the tube may be perforated. The

latter, however, is not often the case. Tubes, however, do get perforated by sparking between the terminals, and this usually happens at the part where the glass is annealed. Another device is to reverse the current for a few seconds at a time. This, however, leads to a deposit of platinum upon the glass, if continued. A current from a larger coil may be passed through the smaller tube until the anode is red hot. This will also lower the vacuum.

A strip of tinfoil may be placed over the cathode end of the tube, or a wooden cylinder moistened with glycerin, or a piece of oiled rag connecting to the cathode terminal. By any of these means an old tube may have its vacuum lowered until it is in working order again. But gradually the resistance gets so high that it is impossible to get any work out of the tube. If it is a favourite tube it may be returned to the maker to be re-exhausted. Re-exhausted tubes, however, rarely last long.

The cause of this increasing of internal resistance is supposed to be due to the fact that under heat the platinum connections disintegrate, and on cooling occlude some portion of the residual gas of the tube. When the tube is warmed this occluded gas is liberated and the vacuum lowered. Blackening of the tube assists this occlusion. It will often be found that a tube apparently quite exhausted will, after having been put away for a few weeks, work again perfectly. The worker will find it advantageous to have several tubes exhausted for different spark lengths, and to keep each solely for different classes of work. In the penetrator tube of Watson & Sons (*Fig.* 8) an attempt has been made to regulate the vacuum by having

Fig. 8.—Showing Bulb with Palladium.

an extra bulb blown on to the tube, which encloses a small piece of palladium absorbing hydrogen. Heat applied to this little bulb drives out the hydrogen and lowers the vacuum. Carbon, caustic potash and other substances have been used for the same purposes. Another method (Glew & Cossor) is to have sealed up in the stem of the tube a few pieces of very fine soft iron wire coated with resinous material. When the vacuum is high one of these pieces of wire is brought forward into the tube by a magnet and heated until the resin is decomposed, with the result of lowering the vacuum.

A new tube (*Fig.* 9), for which much has been claimed, is that of the Queen Company, Philadelphia. The bulb contains a chemical which gives off vapour when heated, and re-absorbs it when it cools. A long metal rod is adjustable so that the gap (*C*) can be varied. The anode of the auxiliary tube is connected up to the anode of the main tube. When put in action, the resistance of the main tube being high allows the current to pass through the auxiliary tube and across the spark gap. This continues until the auxiliary bulb is sufficiently heated to drive out vapour into the main tube and lower the vacuum. The sparking at the gap continues until the vacuum is regulated, when it ceases, and a continuous illumination results. Only an occasional sparking occurs afterwards, as the vacuum

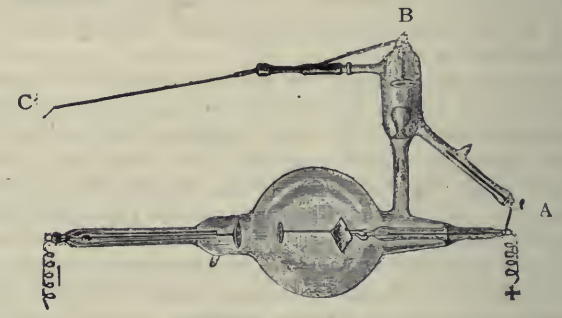


Fig. 9.—Queen Tube.

occasionally varies. Theoretically the tube is perfect, though practically we have found it give very poor photographic results. However, the illumination is so steady that it is excellent for screen work. It is very doubtful if large tubes are of any advantage even with large coils. Provided the sparking distance between the terminals is suitably adapted, a moderate sized bulb suitably exhausted is preferable to a large glass bulb. Glass absorbs a proportion of X rays; it should therefore be as thin as possible. Very thin glass is not suitable for large bulbs. The whole secret of success consists in having good focus tubes and manipulating them with skill, patience and intelligence. One phenomenon often seen in a focus tube during work has given rise to some discussion, this is, apparent splashes of green light upon the glass bulb. It is possibly due to irregularities on the surface of the cathode, but whatever the explanation, it is a fact that the tube will do no useful work while this is the case; such splashes may sometimes be dissipated by warming the tube.

X Ray Meter.—We have no accurate means of testing the intensity of the X rays given off from the tube. We may roughly estimate the degree of penetration by placing the hand against the fluorescent screen as a test. An easily-made meter is a piece of cardboard about 5in. by 4in. divided into thirty-two squares; each square is covered with tinfoil in such a way that No. 1 has only one layer; No. 2, two layers; and so on to the last, which has thirty-two layers superimposed. On each space is cemented a metal number from 1 up to 32. The whole is covered in with celluloid and bound at the edges. On holding this between the tube and screen a measure of the degree of penetration is obtained.

Sources of Electricity and Arrangements for Working.—Electrical power may be obtained from primary batteries, storage batteries, or town supply.

None who could avoid it would use primary batteries, but as there may be workers in places where any other source of electricity is unavailable,* it may be stated that the "Holmes-Burke" type of battery is said to be the best. It will last a run of fourteen days, at the end of which time the zincs will require re-amalgamating (Webster). Groves's batteries, so frequently recommended, though giving a constant E.M.F., are unpleasant, and even sometimes dangerous to manipulate in consequence of the fumes given off.

Storage cells are very convenient, and the Lithanode batteries are both portable and durable provided they are kept charged. This is easily done where there is proximity to an electric station to which they can be sent; or the worker can with a ¼-H.P. oil or gas engine and a small (⅛-H.P.) dynamo charge them for himself. The outlay is not great, and many country hospitals might avail themselves of this small plant to fix up an X ray outfit. The same may be said of military depôts.†

Those who are fortunate enough to possess a town supply of electricity in their houses, can easily adapt it to X ray work, by carrying two terminals to a switch board. This is connected up to a rheostat whereby the ordinary supply is cut down to not exceeding 24 volts and about 15–20 ampères for the larger coils (18–20 inch), or less for the smaller coils. Advice from the maker had better be sought as to

* These, however, may be recommended to use a "Wimshurst" machine, instead of an induction coil with primary batteries.

† Several Continental firms make up portable cases of all the apparatus necessary for an X ray outfit, suitable for the consulting room or for field work. In this country Messrs. Watson suppl. a similar outfit for field work. Such equipment should of course accompany every military contingent.

the requisite current, and any electrical engineer is competent to advise upon and fix the necessary supply. Having the supply within the house, it is very easy for the operator to charge his own accumulators, and these are to be preferred for running the smaller coils. In any case an *ammeter* and a *voltmeter* are almost essential portions of the apparatus. A convenient arrangement for the smaller installations is the combined ammeter and voltmeter of Messrs. Newton & Co. The advantage of this piece of apparatus is in the knowledge of the current power the operator is using. By practice it is not difficult to arrive at a knowledge of the amount of power required for the exposure of certain subjects in order to obtain good radiograms, which is almost as essential as an approximate idea of the length of exposure, and this can only be accurately estimated by having a registering apparatus in circuit.

With the coils of 10 inches spark and upwards it is as well to have the commutator separate from the coil. It is also well to get the habit of never approaching the coil or tube within sparking distance without noticing that the handle of the commutator is upright, which indicates that the current is switched off. When all is ready for work, and the apparatus connected up, it is necessary to set the discharging rods of the coil at a little more than the sparking distance required—so that if the current does not pass through the tube it is discharged across the rods—and then place the tube in position.

This may be supported in any tube holder on a table, if small objects, such as the hand or arm, are being radiographed. But if larger objects are to be radiographed—*e.g.*, the thorax, pelvis, etc., the patient will have to lie on the floor, or on a couch, and a more substantial tube holder will have to be used. A convenient one is that devised by Dr. Macintyre, and supplied by Baird & Tatlock, of Glasgow.

As thorough insulation is desirable, it is well to have the coil and the object to be radiographed placed on thick glass plates, and the patient seated on a chair or stool similarly insulated. In exposing the patient to the X rays, it is necessary to take precautions against injury. Such injury could never occur except in very careless and inexperienced hands. Still, it is within the author's knowledge that very serious mishaps have occurred. A prolonged exposure, or one of too great intensity of X rays, may succeed in bringing a large portion of the hair off the head (within the area of exposure), or the effects of severe sunburn upon the skin, and a case occurred (unpublished, the author believes) where an exposure of two hours and ten minutes of a man supposed to have renal calculus, produced an ulcer on the

abdomen eighteen inches long, which took months to heal, and caused intense pain. Another case of exposure of the back to prolonged X ray action produced an abdominal ulcer also difficult to cure. Now, such cases should not occur, and only the veriest tyro would submit a patient to an exposure of two hours! The precautions necessary to take are: not to place the tube too close to the patient, and to protect the limb to be radiographed with a woollen covering. The test of improper exposure is a feeling of pricking or tingling, or formication in the exposed limb. When this occurs stop the current at once, and remove the tube a few inches further from the subject, until the sensation ceases. If this is done, no further trouble need be anticipated. The sensation experienced is that of the beating of waves upon the skin, slightly tingling. If precautions are not taken, sunburn, reddening and soreness of the skin, and depilatory action at the least, may occur. The focus tube should not be nearer the patient than 6 inches, and for deep structures, *e.g.*, the thorax or pelvis, it will have to be removed to from 1 to 2 feet distance.

Length of Exposure.—Nothing but experience can teach this. Taking a 10-inch coil as the average size used, it may be said generally, that with a perfectly acting tube, an exposure of about 1½ minutes is sufficient for the adult hand or wrist; about 3 minutes for the arm, leg, or foot; 15 minutes for the thorax, and as much as 30-40 minutes for the pelvis. In a young subject these times of exposure will be much reduced; in a fat or very muscular adult they may be much extended. These times may be greatly reduced by the use of intensifying screens.

Intensifying Screens.—These consist of screens of tungstate of calcium—one is placed above a plate (coated thickly with emulsion on both sides), and one below. The whole is then enclosed in a box, having carriers for different sized plates, and the portion of the body to be radiographed is placed over the box. The time of exposure is diminished by two-thirds. With these screens the author has obtained fair radiograms of the sinuses of the face and of the larynx in one minute, and of the thorax in forty seconds. It must be admitted that the pictures produced are not as clear in definition as those taken on ordinary plates. In most tungstate screens there is a granular appearance over the whole plate, and in the best of them there is a general "fuzziness." Films may be used for the same purpose. The screens, cassettes, plates and films introduced by Dr. Max Levy are the best to use for the purpose. For cases where rapid diagnosis is required, or it is desirable to shorten exposure as much as possible, they are very serviceable.

Plates and films must be enclosed in light tight bags before being brought into the X ray chamber, and the operator must remember on no account to allow any X ray illumination to occur with unexposed plates in the room, or they will infallibly be ruined. There are so many excellent plates in the market that it is needless to particularise. Extra rapid plates are of course the best. Eastman's X ray paper is sometimes useful, and with it a number of pictures may be taken at one sitting on superimposed layers of paper. It is doubtful if plates are any better for being doubly coated with emulsion, nor do isochromatic plates show any marked superiority over ordinary rapid plates. The method of development is that of ordinary photographic manipulation, and it is scarcely necessary to enter into that subject, especially as the best developers to use are always given as formulæ accompanying each batch of plates sold by English makers.

When about to radiograph a subject, we have to remember that in the photograph we are producing merely a shadow of the object. It is difficult to lay down any rules. If we wish to photograph some definite object, we must endeavour to get the definition of that particular object as perfect as possible, and free from confusion with other shadows. The only way to accomplish this is to place the photographic plate as near to the object we wish to photograph as possible, placing the tube opposite the structures of tissues not required, and as near to them as possible. The nearer the object to the photographic plate the better the definition. It is in dealing with the soft tissues that our greatest difficulties occur. It is almost impossible to lay down any rule, for the circumstances must vary with the thickness of the part, the power of the coil, the condition of the tube, and the amount of tension of the current supplied. It may, however, be generally stated that to get fair definition of soft structures, we should use a low vacuum, a small current, and give a longer exposure. In the case of the trunk we could not obtain penetration by these means, and we are compelled to use high vacua and high currents. It is a question whether the best results can be obtained with a great quantity of current, that is, high ampèrage at comparatively low tension, or with a smaller ampèrage at a higher tension, that is, voltage. Then again it is still an open question whether the best results are to be obtained photographically with extremely rapid interruptions, such as with the ordinary spring interrupter of the coil, or with slow interruptions with great power behind. Unquestionably, slow heavy discharges are very hard upon focus tubes. Each observer must work out these details for himself, and he will probably not be long before he arrives at data from his

own experience. Having taken the photograph, the beginner will find some difficulty in interpreting the picture. Even experienced hands have felt this so great, especially in the deeper structures, that attempts have been made to devise some apparatus for the localisation of the foreign body.

The one which has met with most favour is that devised by Mackenzie Davidson* (*Fig.* 10). "Two wires at right angles to each other are placed upon the photographic plate. The focus tube is placed with the anode at a measured distance from the plate and exactly perpendicular to where the wires cross, and the tube is fixed in a holder which slides in one plane. One of the cross wires must be in exactly the same plane as that in which the tube is to be displaced; the wires are painted over with pigment, and the part to be photographed is placed on the plate carrying with it a mark of the cross wires. The tube is then displaced to a measured distance to one side of the perpendicular and an exposure given. It is then moved to a corresponding spot on the other side of the perpendicular, and a second exposure taken. The resulting negative shows double images from two different points of view. One quadrant of the plate and a corresponding quadrant on the patient's skin is also marked. The negative is developed and at once placed on a horizontal stage illuminated from below, adjusted so that a perpendicular dropped from a notch in a horizontal scale falls upon the point where the shadows of the wires

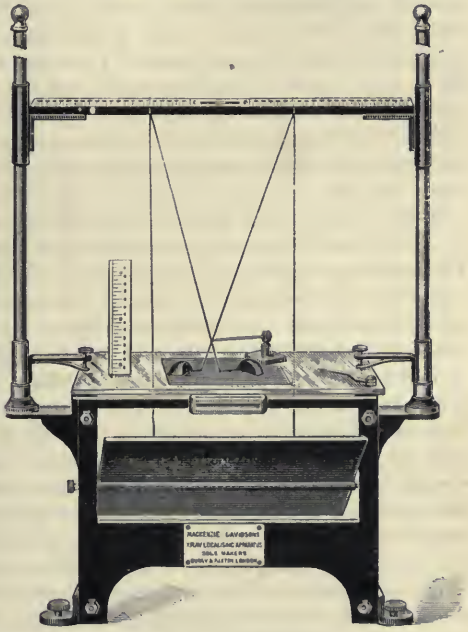


Fig. 10.—Localiser.

* Davidson & Hedley, "Lancet," Oct. 16, 1897.

cross. On each side of it another notch is made at the exact distance in height occupied by the anode in both exposures. A fine silk thread is then passed through each lateral notch, and a small lead counter weight is attached to one end of each thread, the other being passed through the eye of a fine needle. The latter is weighted with lead so that its eye lies flat on the surface of the negative. These two silk threads represent the path of the X rays, so that if each needle be carefully placed upon a corresponding part in each shadow, the point where these threads cross marks the position occupied by the corresponding part of the actual object. Its distance can be measured from the horizontal plane giving its depth, and from the two planes represented by the shadows of the cross wires. The precise size, position and direction of the object can be determined, and as the cross wires are marked on the patient's skin, all precise data for localisation are given."

So far we have dealt only with radiography, or X ray photography ; it is necessary to add a few words on radioscopy, or screen work. The only two fluorescent substances which have stood the test of experience for fluorescent screens are barium and potassium platinocyanide; of these the former is the best. A good screen should be evenly coated with fine crystals. Undoubtedly the best to be obtained at the present moment are made by Gotz, of London. The fluorescence is a bright yellowish green. In using such a screen, it is important first of all to obtain as even an illumination as possible; very frequent interruptions are necessary for this purpose. The remarks previously made as to the penetrative power of the X rays are applicable to focus tubes used for screen work. It must be noted, however, that a tube which is excellent for screen work is frequently poor in photographic results. It is important that all extraneous light should be shut off in the room, which should be absolutely dark. The object to be examined should be placed against the back of the screen between it and the tube, the tube being fixed in such a position that the maximum of illumination is obtained. It is not essential to use any special device for screen examination, but in America an apparatus introduced by Edison, and called the *Fluoroscope*, is often employed. It is merely a screen fixed at the bottom of a box shaped like the old-fashioned stereoscope. With the screen every organ in the human body that can be made to cast a shadow can be examined, and the position of foreign bodies, probes in various sinuses *in situ*, can be ascertained with a fair degree of accuracy. It is especially in screen work that the Wimshurst machine is capable, from its steady illumination, of producing such excellent effects.

The Limitations of the Use of the X Rays in Medicine and Surgery.— The imagination of many people has run riot as to what the X rays can do. The first wild rush of enthusiasm having now, we may hope, somewhat passed away, we may be permitted to contemplate the subject with calmness and properly estimate the limitations of the method. To peruse the literature of the last two years we might sometimes imagine that there was no longer any need for clinical methods in the diagnosis of disease, especially of the chest. While the benefits of radiography to surgery are on all hands admitted, it is precisely in internal medicine where they are more doubtful, and the method has, at present, at any rate, very strict limitations.

Bouchard and others have claimed to diagnose tubercular apical catarrh by the X rays, when objective symptoms failed to reveal its presence. Pleurisy, and exudations in the pleural cavities, indurations of the lungs and pleura, adhesions and thickenings of the pericardium, mediastinal tumours, enlarged bronchial glands, vomicæ in the lungs, hydropneumothorax, pulmonary echinococcus, have all been seen by the screen or photographed. Diseases of the heart and aorta have attracted much attention. A case of atheroma and dilatation of the commencement of the aorta was diagnosed by physical signs, but the X rays demonstrated also an aneurysm of the arch of the aorta, and its pulsations were seen. The condition was afterwards confirmed by autopsy. Bouchard claims to have detected insufficiency of the aortic valves, and states that in healthy subjects, on illumination of the thorax, we scarcely see the aorta because it is overshadowed by the vertebral column. A dilated aorta is well seen, but not its pulsations. But if there is aortic insufficiency the ascending aorta is observed to pulsate towards the right of the sternum, and the descending aorta to pulsate behind and to the left of the vertebral column.

Dextrocardia has been seen by Fernet. Arterial sclerosis is also recognisable. Hepatic tumour, carcinoma of the œsophagus, enlarged axillary glands in mammary cancer, have all been seen. The liver and kidneys cast shadows, and may be observed on the screen. Attempts at diagnosis in diseases of the stomach have been made, both by introduction of metal sounds, and injection of the organ with some opaque substance such as bismuth, but as Dumstrey and Metzner have lately pointed out, the results of such attempts are very misleading. With a sound introduced into the stomach, three consecutive pictures were obtained showing three different positions of the sound ; and a still more unsafe result may be expected from the injection of opaque salts, since these cannot so cover the stomach walls as to give its natural contours.

As to the abdomen, stone in the kidney has only once as yet been successfully photographed (by Kümmell and Waldstein). All other attempts have failed. Gall stones cannot be detected, cholesterin being transparent, but vesical calculi can be seen and photographed. Lime salts are opaque. It is stated by Barjou, Oudin and Barthélmy that it is easy to make a diagnosis in gout and chronic rheumatism. In the latter the bones become transparent in consequence of "condensing osteitis"; in gout the opposite occurs. At the ends of the phalanges and metacarpal bones white flakes are seen, often surrounded by a narrow dark zone, due to changes in the bone substance, and a deposit of urates replacing phosphates, which latter are more opaque than urates. In chronic rheumatism, the clear spaces which are observed in a normal hand between the bone ends, have disappeared, but in gout they are retained.

In obstetrics, Kurz states that neither the vertebral column nor the pelvis present any obstacle in the way of obtaining a clear view of the contents of the uterus. Bordas has recognised with the X rays an ankylotic, obliquely contracted pelvis. X rays are particularly well suited to the study of development, ossification, etc., and such a series of pictures would be of great value.

Radioscopy has also been used to elucidate the physiology of voice and speech, by Scheier, and of the heart movements by Benedikt; also the movements of the diaphragm. But if it is difficult to draw pathological conclusions from the screen shadows, it must be still more so as regards physiological phenomena. A trachea compressed by an enlarged thyroid gland was visible to Grunmach, by fine light lines in the centre of a dark shadow. The changes in the hand in acromegaly have been investigated by Schlesinger, and the anatomy of the frontal sinuses and ossification of the laryngeal cartilages by Scheier.

Cavities in the lungs show themselves as bright spots, and exudations, thickenings, adhesions, and tumours, generally, either in thorax or abdomen, as dark patches, lines, or stripes. Though this is not intended to be a *résumé* of the work done or attempted in radiography, it is evident from what has been said that there is a great field open for investigation in internal medicine as well as in surgery, in which the results are more assured. Foreign bodies are easily seen, as a rule, but their localisation is a matter of difficulty very often, and some method, such as that previously described, must be adopted. There is no part of the skeleton where fractures and dislocations may not be seen, and the presence of splints, bandages and dressings, even of plaster of Paris, does not hinder their examination with the X rays.

They thus become most useful in the control of a set-up fracture. Quite a series of fractures of the fibula, metacarpal and metatarsal bones, previously thought to be displacements, tendinous or capsular contractions, have been demonstrated by Kümmell and Gocht. These are cases in which a hand or foot will not heal, and remains greatly swollen, painful, and with movements impaired. Examination with the X rays has demonstrated that near a well healed fracture of the radius is another fracture, *e.g.*, epiphysis, of a metacarpal bone, or a bony splinter of the radius or ulna, which remains and acts as a foreign body.

Arthritic joints, floating bodies, joints injected with iodoform, ankyloses, and tubercular changes, thickened or destroyed bones, diseased vertebræ, and calcified arteries can all be demonstrated on the screen and photographic plate. Dislocations and diseases of the hip, malformations of the pelvis, and in fact all abnormal conditions of bony structures can be seen and photographed. It is thus evident that in surgery radiography has more scope than in medicine. In the latter we meet with our old difficulty of seeing, and discriminating when seen, the soft tissues and organs, especially those lying deep in the abdomen. Consequently the method lends itself to error, and it is very easy to draw false conclusions. A tumour will not produce such a screen shadow as to be beyond doubt until it is already manifest by physical signs. Similarly, the shadow produced by the aorta and heart is of such ill-defined contour that it would be very unwise to form any diagnostic data from it alone, and the same may be said of apical pulmonary catarrh, which does not produce any picture radiographically until it is beyond doubt by physical signs. As Dumstrey and Metzner[1] remark, a photographic plate which is more sensitive than a screen, does not show it. The same able observers, who have submitted a large series of cases to examination, remark : "Where lung tissue shows evident pathological changes which can be diagnosed, diascopy and diagraphy complete the diagnosis and give information as to the site, extent, and depth of change, and under favourable circumstances may correct a diagnosis, as for instance where a cavity has been overlooked; but it is not possible to make a diagnosis with safety in commencing disease either diascopically or diagraphically." These authors make some very pertinent remarks in their paper, with which we may close this subject. The nearer the light to the object the larger and more distorted is the latter, and *vice versâ*. Relations become more complicated, and errors are greater, because the parts touched by the peripheral rays of the focus tube exhibit a disproportionately larger mass than those reached by

the central rays. Hence the platinum anticathode must always be placed in a condition as nearly parallel to the object to be examined as possible, and also to the photographic plate; and the tube must always be placed over the centre of the object. In the case of the heart, for instance, the shadow may easily be thrown abnormally to the right side, when the rays are directed too much to the left, and the same occurs when a tube is not in the middle line of any object. An error of diagnosis is consequently very easy. The distance from the object varies with each part of the body; the great point is to get parallelism of the organ, the plate, and the anticathode. As it cannot be accurately obtained, the observer has to be on his guard to avoid error of observation as much as possible, or false pathological conclusions may be obtained. It is for this reason that internal medicine so readily lends itself to error of observation.

The correct reading of a Röntgen ray picture, when obtained, is by no means easy, and it takes a good deal of experience and training to interpret a radiogram correctly. It is thus very easy for the "philistine" to dismiss the matter with contempt because he cannot interpret the result.

Therapeutically the X rays appear to have a very marked influence upon lupoid tissue. Some very striking cases were published in the "Fortschritte der Röntgen Strahlen" by Gocht, from Kümmell's clinic, in Hamburg, and subsequently by Albers-Schönberg. The paper of the former contained notes of a case of trigeminal neuralgia, two cases of mammary carcinoma, six cases of lupus, a case of delayed healing after operation in consequence of hairy growth, and a case of nævus pilosus pigmentosus. Albers-Schönberg's cases were two. Some of these cases of lupus had previously submitted to treatment by tuberculin, lactic acid, scraping, cauterisation with Paquelin's cautery, etc., without benefit. But under applications of the X rays the intense dermatitis produced ended in the solution of the lupoid nodules and cicatrisation and complete healing of the ulcerated parts. Curiously enough, the applications were ineffective in lupoid ulceration inside the nose. The results obtained by these surgeons are so striking that it is to be hoped that the method will be awarded an extensive trial in this intractable disorder. From Gocht's cases it is likely that X ray applications may be very useful in alleviating the intense pain of neuralgias and cancer.

The depilatory action of the X rays is now well known, and several individuals who have been submitted to prolonged exposure of the X rays about the head, have suffered the loss of portions of their hair. This, however, always grows again after

a more or less long interval, and frequently more vigorously than before.

It is likely that in nævus X ray applications may lead to good results. A mild case of prolonged exposure exhibits symptoms of dermatitis resembling acute sunburn. There is redness and some swelling, combined with more or less discomfort, though not actual pain. Hair falls out. If the lesion is deeper, destruction of tissue follows, and appears to be at one of two spots, either where the rays fall on the skin, or where they may be supposed to pass out of the body again into air. At least in two cases which are known to the writer, the ulceration occurred on the opposite side of the body to that exposed to the X rays. These were, however, extreme cases of exposure. The whole subject of dermatitis in X ray applications requires elucidation, and it is not without diffidence that the writer suggests the cause to lie in some deep disturbance of the local vaso-motor and trophic nervous systems, caused by this particular stimulation, leading in mild cases to great nutritive disturbances of the part affected as evidenced by the lesion of the hair follicles and sweat glands, followed by vascular paresis and œdema, and if the stimulation be excessive, actual death of tissue. Probably the central nervous system is also deeply affected, and the causation of ulceration in distant parts of the body may possibly bear some resemblance to that caused by extensive burning of the skin. The writer hopes that surgeons may give the matter the study it merits.

It has been claimed that tuberculosis has been cured by the application of X rays. The statements made have not borne investigation, and it is not to be hoped that, as we know the X rays at present, at any rate, they could serve any useful purpose in this disorder. Indeed, one case was recorded in which pulmonary phthisis broke out in a patient *after* the application of X rays, and the case might be considered one of cause and effect.

The question of the *influence of X rays upon micro-organisms* is not yet decided. While some experimenters have arrived at the conclusion that the X rays have no effect upon bacterial cultures, others have declared that in cultures micro-organisms are killed by prolonged exposure to the X rays. These widely-divergent results appear impossible of reconciliation. But many factors have to be taken into account in such researches. Not the least important is the determination of how much of the supposed effect observed is really due to X rays or other kathodic rays, and how much to static electricity occurring in or around the vessel containing the culture. The latest work done upon the subject is quite divergent. Thus, Rieder,[2] of

Munich, declares that the X rays from a "hard" tube kill cultures exposed to them for an hour, while the writer and Dr. Forbes-Ross find that the exposure of cultures of bacillus prodigiosus, staphylococci, streptococci and coli bacillus to the emanations of a vacuum tube for an hour at a time, has the effect of marvellously stimulating their growth through several generations. Bacillus prodigiosus is made to form pigment in warmth, and microscopic examination of the exposed cultures shows evidence of spore formation. These cultures and specimens were recently exhibited at the Röntgen Society by the authors,[3] and the work is being continued in the hope of setting the question at rest. Of course, if it could be found that by exposure to X rays micro-organisms were killed or attenuated in culture, an important fact would be gained. Attenuation may be attained by excessive stimulation and overgrowth.* They do not appear to have any destructive effect upon tubercle bacillus. As to that there is a general consensus of opinion.

In legal medicine the X rays may do good service. Some adulterations of food may be detected, as in tea, pepper, sugar, coffee, etc., and the X rays will clearly show whether a new-born infant has breathed or not. But not much work has been done in this direction, and as in most other branches of medicine and surgery, we have scarcely as yet got beyond the fringe of the subject of the application of the X rays.

In 1896 the writer conceived the idea of applying the *cinematograph* to X ray examinations of moving joints. The first experiments were made by the writer in conjunction with Dr. Macintyre, of Glasgow, upon the movements of the leg of a frog, and were so successful that the latter exhibited a cinematograph film at the Glasgow Philosophical Society shortly after. It was hoped by the writer that the method might be applied to the study of the bone movements of human limbs. Difficulties are great, chiefly owing to the necessity of instantaneous exposures with a cinematograph film, but they are not insurmountable. Such pictures would be very instructive.

It is not within our scope to discuss the applications of the X rays in directions other than Medicine and Surgery—however interesting they may be—such as Zoölogy, Botany, Metallurgy, the detection of false gems from real, of genuinely old pictures from recent imitations; and in commerce, in the detection of fraudulent practices. In a brief

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* X rays undoubtedly stimulate the germination of some grains. This the writer has repeatedly proved in the case of cress, a quickly growing plant, and the same has just lately been affirmed by Maldiney and Thouvenin.

article such as this, which merely skims the surface of the subject, it is impossible to deal with many matters which the writer would have liked to treat in detail. It is also impossible to refer by name and reference to every one, and the writer hopes that none will feel himself aggrieved by not being specifically mentioned. The endeavour has been to present a sufficiently complete *résumé* of the subject as it appears to-day, to encourage the worker to give his attention to one or more of the important developments that may appeal to him, and in respect of which he may greatly add to the sum of our knowledge.

REFERENCES.—[1] "Fortschritte der Röntgen Strahlen," Band i, Heft iv.; [2] "Munch. med. Woch.," 1898, No. 4; [3] Röntgen Society, June, 1898, and "Archives of the X Ray," June, 1898.

Diagnoses of Diseases of the Thorax by Röntgen Rays.

F. de Havilland Hall, M.D., F.R.C.P.

INCREASING experience in the use of X rays in medical practice has proved that they must now be accepted as a valuable supplement to our other methods of physical examination. As the result of an examination by means of the X rays of four hundred medical cases, the majority of whom were suffering from some thoracic disease, Dr. F. H. Williams[1] has formulated the following conclusions :—

The fluoroscope gives us better assurance that the lungs are in a healthy condition than other methods of physical examination, and, in connection with auscultation and percussion, teaches us in disease to interpret better the signs found by the older method.

The fluoroscope gives us earlier evidence of disease in some cases of tuberculosis, and more accurate information of its extent (this affects the prognosis) than can be obtained by the usual physical examination.

The fluoroscope gives us more accurate information of the extent of the disease (this affects the prognosis) in pneumonia and of the duration of an abnormal condition of the lungs.

It shows a displacement of the heart in pleurisy, which is sometimes not recognised by other means, and assists us to recognise and estimate the amount of fluid in the pleural and pericardial sacs.

It enables us to recognise or exclude emphysema.

It enables us to ascertain the cause in some cases of dyspnœa that would otherwise be obscure.

It assists us to recognise œdema of the lungs, pneumothorax, hydrothorax, and pneumohydrothorax.

It gives us the means of making an earlier and more certain diagnosis of some cases of thoracic aneurysm than any other method, and

enables us in certain cases to exclude it where it has been suspected but is not present.

It enables us to outline the heart more accurately and completely than has hitherto been possible, and to observe certain changes in it; and it especially assists us to a more accurate determination of the size, movement, and position in disease, and in some cases to observe not only the heart as a whole, but the auricle and ventricle separately. Further, it enables us to recognise earlier associated conditions, such as œdema of the lungs, and assists us to recognise pericardial effusion.

We may sometimes make a diagnosis by an X ray examination alone, in certain cases of aneurysm and emphysema, for example, but it is, as a rule, only one method of examination, and its value in assisting us to establish a diagnosis varies, of course, in different diseases. The X ray examination should be used in connection with other methods; the information derived from it in suitable cases is more definite and accurate than that obtained from auscultation and percussion. The fluoroscope and the stethoscope aid each other.

As is the case with all other observations on which a diagnosis is founded, the conditions which are revealed by the fluoroscope are only to be rightly interpreted after experience in making X ray examinations has enabled the physician to give these observations their proper weight.

The difficulty of diagnosing dysphagia due to changes in and about the œsophagus is notorious. The Röntgen rays promise to render valuable assistance in this direction. Bouchard,[2] for instance, records the case of a man of forty-five suffering for two months from progressive dysphagia, with spasmodic seizures, and who was finally unable to swallow anything but liquids. He was supposed to be suffering from stricture of the œsophagus, but by means of the fluoroscope a tumour was discovered situated at the left side of the fourth dorsal vertebra, which was diagnosed to be malignant. Nine days later the patient succumbed to pyo-pneumothorax, and the necropsy verified the accuracy of the diagnosis. Bouchard has also been able to diagnose the existence of an aortic reflux by means of the X rays.

REFERENCES.—[1] "Amer. Journ. Med. Sci.," Dec., 1897; [2] "Med. Press and Circ.," June 2, 1897.

Electro-Therapeutics.

By A. D. ROCKWELL, A.M., M.D., NEW YORK.

The Functional Neuroses.—In no class of diseases, perhaps, are stereotyped methods of treatment—either medicinal, electrical, or hygienic—of less avail than in the functional neuroses.

Every practitioner is liable to fall into certain therapeutic ruts. No one, for example, doubts the efficacy of the rest-cure in many so-called nervously exhausted conditions, nor can one doubt its inefficient and even injurious effects in many other cases. Neither rest, nor active exercise, nor fasting, nor stuffing can be indiscriminately prescribed, with any hope of hitting the mark except in occasional cases.

It is difficult to tell where the nervous condition ends and the toxic begins; to discriminate between cell exhaustion, and the irritability that arises from the imperfectly transformed products of digestion. Close observation is required and a careful study, not only of the present condition of the patient, but of his past, his method of life and his heredity.

Various conditions again, that we are accustomed to classify as nervous, do not in reality come under that head at all, are not due to pathologic changes beginning in the nervous tissues. Hemiplegia, cerebral softening, even chorea and epilepsy in many instances, do not belong to the true neuroses. The causes are mostly arterial causes. In hemiplegia, especially, it is a question of arteries, and in many choreic and epileptic cases there is necessarily no nervous diathesis to be taken into consideration.

The true unadulterated type of nervous disease is found in those conditions in which there are no arterial causes, and in which the arterial symptoms are of secondary importance and consecutive to nerve derangement. Under this head we must class those various conditions of nervous instability that we are accustomed to speak of as nerve exhaustion, brain fag, neurasthenia—the results of fatigue, stress, or strain carried to excess.

Electro-physiologic experiment teaches that if either directly or indirectly we electrically excite a spinal ganglion we get a shrinkage of the nerve cells which continues for many hours, and persistent stimulation may utterly destroy the life of the cell. It is at least rational to suppose that a similar pathologic change in the nerve

cell takes place under the stimulation of the varied activities of life, exhaustive mental efforts, and especially the stress and strain of abnormal emotion and early sexual abuse. Normal fatigue in these directions permits a ready recuperation; pathologic fatigue, however, does not permit a ready return of nerve and muscular tone to the normal level, and, when repeated and excessive, results in permanent exhaustion of the nerve cell. "A man is as old as his arteries," and, barring accidents, it is almost impossible for one to die whose arteries are structurally sound. He who suffers from arterial degeneration may, and usually does, live comfortably and dies suddenly, while the neurasthenic with his healthy arteries lives most uncomfortably and dies slowly. If it were not for one fortunate favouring factor, it might be a question as to the choice of these two conditions. I refer to the incurability of the one and the curability of the other.

Notwithstanding its factor of pathologic fatigue, **Neurasthenia** does not necessarily mean mental exhaustion, for many neurasthenics are capable of sustained intellectual effort. It does not necessarily mean physical exhaustion, for many neurasthenics are equal to sustained physical exertion. It is, indeed, by no means rare to meet neurasthenics who can without distress perform unusual work of brain and body. This seeming paradox has greatly perplexed students of this disease, and more than any other fact of observation has led them to doubt the existence of any such disease as neurasthenia. That one nervously exhausted can still be equal to severe mental exertion seems to be a contradiction of terms. If, however, we take into account the reserve forces of the body, we find a partial solution of the problem.

The neurasthenic has, to be sure, but a small amount of reserve nerve force as compared with the perfectly strong and healthy man, but what reserve force there is is expended rapidly and vigorously, and results in a more effective and correspondingly larger amount of work. Profound exhaustion may result, but in the same ratio as the expenditure of force is more rapid in the weak than in the strong for the production of the same degree of profound exhaustion, so in the same ratio food and repose renew more rapidly this temporary loss of force in the neurasthenic than in the strong and healthy. This capacity for doing effective and original work on a small amount of nervous reserve force I have in my own experience seen illustrated time and time again, and the history of literature abounds in evidence that much of its best and most original production has been the work of neurasthenics. But if neurasthenia does not always mean mental and physical exhaustion, it does invariably mean a more or

less profound perversion or disturbance of the *morale*, with marked psychical and sensory symptoms.

Now, in these cases the question is often asked, Does electricity do good, and if so, how? The neurasthenic appears, as a rule, to be well nourished. He frequently gains weight; his colour is good and his appetite often first-class. But is he well nourished? How can he be well nourished with a nervous system so erratic and unstable that the slightest influence, a casual glance even, is sufficient so to disturb the vaso-motor equilibrium as to cause a general nervous disturbance, as manifested in the flushed face, perspiring hands, even dizziness and perverted vision. The neurasthenic is not only not well nourished, in the true sense of perfect nutrition, but there is a good reason to believe that he may suffer from toxic influences, which may be both a cause and a result of the undoubted malnutrition of the nerve cells.

The first necessary step in the process of relieving a neurasthenic is to gain his confidence, and this one can do only by recognising his infirmities and treating them with consideration, sympathy, and respect. There is no stereotyped method of treatment. We cannot well get along without judicious medication. The weak and erratic nervous system must be temporarily sustained and soothed, while the patient is profiting by the slower process of hygiene and electricity. On some one of the various bromides, including the **Bromide of Zinc,** either alone or in combination with **Belladonna**, **Cannabis Indica,** etc., according to individual idiosyncrasies, it has been my habit to rely more confidently than upon most other combinations. But it is to **Electricity** that I turn for the best results that therapeutics is capable of yielding in this tedious and distressing neurosis. If it be true that neurasthenia is a disease of exhaustion, of impaired nutrition, then, theoretically, electricity ought to be of service, since as an aid to nutrition its position is sufficiently assured; and practical experience certainly teaches one that electrisation is altogether the most powerful means at our command in the final restoration of perverted cellular nutrition.

In the functional neuroses, and especially among the nervously exhausted, there is no remedy to the effects of which there is a more varying degree of susceptibility than to electricity. Consider, for example, the difference in susceptibility to the galvanic current. There are cases in which anything over 10 or 15 milliampères on any part of the body seems to provoke irritability, while one half of this strength applied to the head becomes decidedly disturbing. On the other hand, there are others whose very disease seems to

make them equal to the endurance of unusual strength of current, which it is found necessary to decrease as improvement progresses.

These remarks apply to the other manifestations of electricity. It is, perhaps, hardly necessary to call attention to the fact, that it is impossible always to predict whether it is a faradic or galvanic, static or sinusoidal form of current, that will give the greatest satisfaction and the best results in these cases of malnutrition of the nerve cell. The patient comes to know sometimes, far better than his physician, what agrees and what does not agree with him. If we are wise, we will in these cases—like astute political leaders, who "Keep in the van by recognising where the people are dimly minded to run"—retain the confidence and direction of our patients by quickly divining their well-founded preferences.

Among the occasional symptoms associated with perverted cellular nutrition are **Disturbances of Circulation.** This instability of circulation is more especially noticeable in the extremities. They become hot, then cold.

I have seen cases in which the hands, feet and face, under emotional causes, changed within a few minutes from normal to marked sub-normal heat. This sudden fluctuation results in internal congestion. The kidneys especially suffer, and I have in my records a number of cases in which albumin and casts have appeared, consecutive to long-standing conditions of this type. I cannot speak too highly of the action of **Static Electrification** in the relief of these symptoms. The circulation is equalised, and equally as a tonic and sedative its good effects are not slow in manifesting themselves.

In connection with prolonged applications of the induction current of high tension over the kidneys, I have observed in several instances the disappearance from the urine of both albumin and casts. Static electricity, together with other forms of electrisation, is more than a mere tonic, or stimulant, or sedative. They act as eliminators of poisonous principles. Now I believe that there are forms of neurasthenia and insane conditions into which toxins may enter almost entirely as causative factors. Through poisons circulating in the blood the neurons become affected, and whether the disease is organic or functional is here, as in other conditions, the important question. Neurasthenia is in the majority of cases functional and generally curable, while insanity is probably in the majority of cases organic, and therefore incurable. But insanity is sometimes curable, which suggests a purely functional derangement of the nerve cells, while neurasthenia, in some rare instances, may be incurable because of a chronic organic condition brought about by toxic causes.

If this be true it emphasises the importance of early treatment. Not only does electricity directly influence nervous action through the vaso-motor system, but it excites vital function by acting directly on the cell itself and on the protoplasm, thus hastening nutritive changes and cellular activity ; excretion is stimulated and poisons are eliminated.

In further explanation of the *rationale* of the therapeutic action of electricity, the discovery and suggestions of M. Edouard Branly, professor of physics in the Catholic Institute of Paris, if not conclusive, are at least interesting. Through no possible interpretation could it have interest for us on the old theory of the anatomical continuity of the nervous system, but in the light of the discovery of the neuron, by which we find the nerve tissue made up of distinct and disconnected elements, it immediately becomes worthy of consideration.

Briefly stated, M. Branly discovered that if a tube of iron filings be placed in a weak galvanic circuit, the meter fails to register, thus showing that the substance is practically non-conducting. If, however, the tube is previously placed in a solenoid through which course currents of high frequency, or is simply subjected to the influence of static electricity or of the cathodic ray, the tube immediately becomes a conductor and the current passes. Subject the tube with its contents, however, to some sudden shock, as that of a static spark or blow, and its conductibility is immediately annihilated.

Various theoretical considerations, unnecessary to discuss here, are advanced in explanation of these phenomena. They may or may not be the true solution of this mysterious happening, but we certainly see a similarity between the individual iron filings of the tube and the individual neurons of the nerve substance, and a striking analogy between them in their relation to electric energy and shock, which may throw light not only on the physiology but on the cause and cure of the functional neuroses. It is well known that we can hasten the recovery of hysterical paralysis by placing the patients in an electrostatic field, or subjecting them to the influence of currents of high frequency coursing through a solenoid, and by other forms of electric energy. The analogy between the two—the tube of iron filings and the nerve structure—may be carried still further, since the restored nervous conductibility in a case of paralysis of hysterical origin may be instantly annihilated, as is the electric conductibility in the tube of iron filings by sudden shocks.

"Does not this help to make clear to us the characteristic causation of hysterical paralyses? Does it not reveal the traumatism which produces them? Moral or physical traumatism, emotional shock

or railway accident, psychical influence or injury, brutal application of physical agents, heat, cold, light, etc. ; in fact, all violent excitation is capable of producing loss of conductibility of the nerve current proper, in or through the neurons, as it can restore it when abolished."

In certain cases of hysterical paralysis patients who have been confined to bed for months or years have suddenly regained power when some violent neuro-motor excitation, such, for example, as a sudden conflagration, has overcome the non-conductibility of the neuron. Whether or no this discovery of M. Branly is sufficient to furnish the key, as its enthusiastic advocates suggest, to the cause and cure of the functional neuroses, it at least opens up a novel and interesting field of research.

In an article on "Le Traitement électrique et l'éducation dans certains cas de paralysie spasmodique infantile," by Dr. Deschamps, the following conclusions are formulated :—

In **Infantile Cerebral Hæmorrhage** there may exist simply a monoplegia—a paralysis of the upper right extremity—and which is not to be confounded with the peripheral paralysis called obstetrical. It is distinguished by the electrical reactions, by the conservation, and even exaggeration of the reflexes. Abandoned to itself it appears incurable, but is amenable to electro-therapeutic treatment and rational education. The electrical treatment (galvanic and faradic) is to be commenced early, a few months after birth if possible. It is for the purpose of preserving the integrity of the peripheral nerves and muscles. As soon as the child is able to comprehend, the electrical treatment is to be supplemented by muscular education, along the line of active gymnastics.

Apostoli and Planat relate a case of **Acute Infectious Myelitis** in which a cure followed galvanic treatment. Their conclusions are these :—

(1,) In the course of an attack of la grippe, we sometimes find the sequelæ of myelitis or peripheral neuritis.

(2,) La grippe myelitis belongs to the group of acute infectious myelitis, to which also belong acute syphilitic myelitis and myelitis of hydrophobia. In myelitis of this kind the cord is invaded by microbic agents themselves, or simply by toxins. There is no anatomical lesion properly so-called. The demonstration of this fact is evidenced by the researches of Oettinger and Marinesco, and the experiences of Widal and Bezancon.

(3,) Acute grippe myelitis, symptomatically, takes on the form of systemic maladies of the cord, as, for example, the amyotrophic lateral sclerosis of Charcot.

(4,) Whilst Charcot's disease progressed to a fatal ending, acute myelitis following la grippe, like acute syphilitic myelitis, may terminate in recovery.

(5,) In acute infectious myelitis we have a simple dynamic derangement, whilst in systemic myelitis the process is destructive.

(6,) In dynamic troubles, the indications are to apply a remedy having power to modify the circulation and nutrition. The electrical method appears to meet these indications, and under the form of **Ascending Galvanisation** of the cord has given remarkable success.

Dr. Felix Allard in a careful study of the various electrical applications in the treatment of **Exophthalmic Goitre** finds that the four following methods have proved most successful: (1,) Galvanisation of the neck with high intensities; (2,) Faradisation of the carotid; (3,) Precordial faradisation; (4,) Peri-ocular faradisation.

Vaudey has used **Electrolysis** with some success in **Basedow's Disease.** His object is to cause glandular atrophy by obliterating vessels, and through retraction of the tissues, suppress toxic secretions, thus overcoming the tendency to hyperthyroidation.

Dr. Bisserie, in an article entitled "Traitement du **Lupus érythémateux** par les courants de haute frequence," says that his method is similar to that of Dr. Ouden. The patient is seated on a stool and connected with the earth. He applies over the *locus morbi* an electrode formed of a metallic armature enclosed in glass. Each diseased part is submitted to an application, one to two minutes in duration. The cases treated numbered six—two applications a week. The part treated became instantly pale, followed by intense redness, and accompanied by pronounced smarting. In every case marked amelioration was obtained, and in two cases an approximate cure in fourteen and eighteen applications.

In August, 1898, J. Bergonie and Teissier gave their report, "Sur l'action des Rayons X sur la Tuberculose," before the "Congress de la Tuberculose." In their experiments they found that in certain cases the action of the rays seemed favourable, since fever was sometimes diminished, with amelioration of general symptoms. Rarely, however, was there any modification of the local symptoms. In some cases, as those of M. Revillet and M. Teissier, pneumonia supervened, but whether or not due to X rays, doubt is expressed. In some cases also, of M.M. Bergonie and Monjour, severe dyspeptic symptoms have coincided with an accentuation of treatment. The authors conclude that the action of the X rays on pulmonary tuberculosis are negative; not only has the malady not been cured, but it has not been essentially ameliorated or retarded. The experiments seem to

demonstrate that if the treatment is not positively harmful it is certainly without therapeutic efficacy.

Einhorn reports one hundred and eighteen patients treated with direct **Faradisation of the Stomach.** Of these, seventy-nine were cured (all the subjective morbid symptoms having disappeared), thirty-two were greatly ameliorated, five slightly improved, and in two the condition remained unchanged. In the treatment of these cases—many of them—electricity was not the sole remedy. In only thirty-eight cases was intra-gastric electrisation alone used. Of these, twenty-seven patients were cured, six greatly improved, four slightly improved, and one unchanged.

In an article on "Atonic, or Nervous Dyspepsia, and its Treatment by Intra-gastric Electrisation," Rockwell says that **Intra-gastric Electrisation,** as employed in a case reported by him and in other similar cases, has taught him that better results are obtained by the use of the high tension coil than by those in ordinary use. The current from a coil of seven thousand five hundred feet results in far greater sedation, both local and general, than the current from coils of two thousand feet and less in ordinary use. This fact has long been observed in the treatment of irritable uterine condition, and is equally true as relates to the stomach. It is a mistake, also, to hold the indifferent electrode in the hand. In this way we fail to make a sufficient impression upon the stomach. Long before a sufficient strength of current for this purpose has been reached, the sensation in the wrist becomes unbearable. While the introduction of the gastric electrode is a very simple matter, no more difficult, indeed, than swallowing a large bolus, yet one often finds it no easy matter to persuade nervous patients to make the attempt, and, in some cases, with the will to swallow it there is such a nervous dread that the act becomes impossible. In these cases the difficulty can only be overcome by using a solid flexible stem instead of a string, to connect with the electrode, so that it can be introduced without the aid of the patient.

J. Bergonie describes a new "localising electrode" to prevent diffusion of current. It is supposed to be especially useful in **Paralysis from Lead-poisoning,** where certain muscles of the posterior region of the atrophied forearm do not contract under the influence of the faradic current.

The commercial current has come into such general use in the last decade for power and lighting purposes, that now in every well-regulated office building in our cities is found the lamp socket, charged with electric energy, ready for the electro-therapist to use in his work.

Edward Jewell, E.E., of Chicago, commenting on this fact, remarks that much has been written on the danger of commercial currents, but many have failed to point out the fact that the danger lay not in the current itself, but in the imperfectly constructed apparatus used for its control. Those of the profession who are equipped with modern, reliable apparatus, have found the much-advertised dangers of the street current to be a myth, existing chiefly in the minds of those not thoroughly familiar with it; but to those who hesitate to adopt it from fear of a possible accident is suggested a combination of the rotary transformer and rheostat. By this method the street current becomes simply a mechanical force used to generate another similar current, which is controlled by the rheostat in the usual way, and hence there is no electrical connection between the patient and the street mains.

REFERENCES.—Brauly, "L'Actualite médicale," Dec. 15, 1897; "Archives d'électricité médicale," February, 1898; M. Guimbail, "Revue Internationale d'électro-thérapie," March, April, and May, 1898; E. Deschamps, "Revue Internationale d'électro-thérapie et radiothérapie," Feb., 1898; Apostoli and Planat, "Annals d'électrobiologie d'électrothérapie et d'électrodiagnostic," July 15, 1898; Felix Allard, "Annals D'électrobiologie," etc., July, 1898; Bisserie, "Journ. de méd. et de chir. prat.," March 25, 1898; J. Bergonie and Teissier, "Archives d'électricité méd.," August 15, 1898; Einhorn, "Med. News," June 18, 1898; Rockwell, "International Clinics," July, 1898, and "New York Med. Rec.," Oct. 15, 1898; Rieder, "Journ. of Electro-therapeutics," Oct., 1898.

Climatic and Open-Air Treatment of Phthisis.

By F. DE HAVILLAND HALL, M.D., F.R.C.P.

At no period in the history of medicine has more attention been devoted to the treatment of consumption than at the present time. Medical papers are inundated with articles on the subject, especially in relation to the open-air treatment of the disease. One may with truth assert that it has been thoroughly ventilated.

One important outcome of the discussion that has taken place is a general agreement that the treatment need not be confined to any particular country, but that it can be beneficially carried out in all healthy climates. Dr. Arthur Ransome's[1] remarks in reference to this question may be quoted: "In the first place, neither a particular latitude on the earth's surface nor any great altitude can be considered absolutely necessary. Of the more important sanatoria on the Continent some are placed at high altitudes, others almost at the sea level. As Dr. Léon-Petit points out, '1850 mètres and 35 mètres above the sea level are the two extreme limits represented by Arosa and Malchow, and other sanatoria are placed at various intermediate degrees in the scale of altitude.' Some of them are installed in the severe climates of Silesia and Saxony, others on the foggy banks of the Rhine, one at least in a valley of the Black Forest, and several on high plateaus, amongst long-enduring snow, but where the atmosphere is pure and sunny. Each of these places has its advantages and disadvantages, but all of them can show a fair proportion of cures. In a recent paper Professor von Ziemssen[2] discusses this question and passes in review the relative merits of high and ordinary altitudes. He concludes that the only advantages in favour of mountain climates are 'the pure, dry air, the slight wind in winter.' He then points out the disadvantages of treatment at high altitudes. Marked atmospheric changes occur not unfrequently (wind, rain, snow), and are injurious to the patient. They make the acclimatisation of many patients difficult, and patients with high temperatures, especially those who do not reside in the sanatoria, may become decidedly worse. Other objections are the wearisome journey with all its bad effects, the separation from the family, the comfortless conditions in severe illness and in case of death; further,

the financial anxiety and the economy necessitated. All these have a bad effect upon the patient. When the advantages and disadvantages are compared, the former are not so clear as to indicate the unconditional recommendation of treatment at high altitude."

The attributes which a climate intended for open-air treatment ought to possess are thus laid down by Dr. Léon-Petit, and may be found in certain localities in almost every country. "The best climate is that which restricts the least, the daily duration of the stay of the patient in the open air:" (1,) It is obvious that pure air is indispensable, and therefore that we must avoid proximity to large towns or of factories giving forth soot, dust, or deleterious gases; (2,) The soil upon which the sanatorium is to be built should be sandy, without damp, and affording the smallest possibility of fog after sunset. Plains well exposed to the south, or broad valleys fully open to the sun, are particularly favourable on condition that they are sheltered by hills against north and north-west winds. "The immediate neighbourhood of a forest of pines is likewise very desirable both as a purifier of the air and as a shelter in summer against the heat, and in bad weather against the wind"; (3,) The phthisical patient must not feel himself to be in a barrack or in a prison; he should have before his eyes something better than walls. An extensive view exercises upon both mind and body a reflex action that is most beneficial. An elevated site, and gentle slope from it, is therefore indicated. Well provided with fresh water, if possible from a spring, it should be sufficiently extensive to afford a large garden, or better still a park, surrounding the building; (4,) The access to a sanatorium for phthisical patients should be as easy as possible, and it should not therefore be far from a railway station, and the roads in the neighbourhood should be in good order.

The recognition of the fact that the open-air treatment of phthisis can be carried out perfectly satisfactorily in England should lead to its more general adoption. The remark which has been attributed to Charles II, "That there are more hours of more days in the year in which it is possible to be out of doors in England than in any other country," would seem to indicate that this plan of treatment could be carried out here quite as successfully as elsewhere. Already it has been started at various places—Bournemouth, Cromer, etc., and it is to be hoped that ere long every important centre will have a sanatorium in the country for the open-air treatment of consumptive patients.

Dr. Burton-Fanning[3] has written a most valuable article founded on the experience gained at the convalescent home near Cromer. Here,

since the spring of 1895, he has had six phthisical patients at a time carrying out the open air treatment. The method of treatment is best told in his own words : "There are a verandah and a summer-house conveniently situated with regard to the prevalent winds, and I have had erected in the grounds a shelter with two movable side walls, which consist of panels of wood and glass. These are placed in position each morning after the direction of the wind has been observed. The patients adjourn to one or other of the shelters, at 8.30 every morning, and pass the rest of the day there in long chairs. When the other work of the home permits their meals are brought to them outside. As a rule they come indoors at sunset, but on particularly dry nights both in winter and summer they have remained out of doors till 10. Besides warm overcoats they are enveloped, in cold weather, in one or more rugs, and great use is made of sacks thickly lined with wadding, into which they put their legs and to which, when required, a hot-water bottle is added. If the patient feels the cold he is instructed to use an additional wrap, and if that is insufficient he is brought inside. Moderate evening fever (below 102°F.) has been considered no contra-indication to following the treatment in its entirety. Not only have I seen no harm follow exposure to the open air while the temperature was raised, but I think that reduction of evening fever is one of the effects to be most confidently anticipated from this hyper-aëration. Though I have not had such cases at Cromer, those in the last stages who are too weak to leave their beds should have the same sort of treatment on a balcony or by an open window. I anxiously watched my earlier patients lest they should develop pleurisy and pneumonia, or some other complication attributable to cold, but am now assured that they run no special risk of these. For catarrhs of the nasal and bronchial passages they were not kept wholly indoors, but were made to avoid the slightest damp. Several patients discovered for themselves how far less prone to colds they soon became under this life. The treatment is commenced more or less tentatively with each patient ; during the first week or two they only sit out on good days, and it is ascertained that they easily keep warm. No difficulty has been experienced in the gradual acquirement of the hardness necessary to withstand colds and catarrhs. The night is passed in a large room with widely opened windows. As far as one sign goes I think the observation of the patient's circulation forms the best guide to his management. The question of perpetual repose or of exercise has in the first place been decided by the strength of the pulse. After carefully watching patients under conditions of moderate exercise and of absolute

rest, I have satisfied myself that the latter should be enforced for those who have any perceptible weakness of the pulse. I am inclined to think that one of the chief disadvantages of attempting the open-air treatment in the patient's own home is the difficulty of enforcing this perpetual rest. The great cause of cardiac weakness in phthisis is the degeneration of heart muscle, brought about by prolonged fever, even if this only obtains during some hours of each day. Open-air lessens this fever, as we shall see, and thus checks further cardiac degeneration, and also by its tonic effects on the system repairs slowly the damage already done. This is, I believe, materially assisted by complete rest, and I have watched improvement of the pulse occurring steadily during many months of this treatment. Not only has the pulse strengthened on the abandonment of any exercise, but the digestion and general vigour have also improved. With this condition of weakened heart these patients commonly manifest cold and blue extremities; they require careful watching and the use of additional wraps, foot-warmers, or doses of brandy. **Digitalis** has also been used with advantage in these cases. No routine use of drugs has been made, but all symptoms and intercurrent ailments have been treated as immediately and appropriately as possible. An ordinary linctus has been given for excessive cough and to help sleep; when necessary, rhubarb, gentian, or soda, etc., have been administered to help digestion, and cascara or other aperients have been used for constipation, which this treatment somewhat tends to induce. I need hardly say that the strictest injunctions were given as to the disposal of the sputum; the patients were provided with proper spittoons in which all expectoration was received and kept moist.

"The general dietary of the home had to be adapted for the phthisical patients. It consisted of bread-and-butter and cocoa for breakfast, with bacon in addition twice a week; a glass of milk at 11; meat, vegetables, and pudding for dinner, with milk or stout; bread-and-butter and cocoa for tea; and bread-and-butter and milk for supper Nothing has been more gratifying or striking to those watching this treatment than the complete conversion of the patients themselves to it. They were admitted to the home on the understanding that they would implicitly obey all directions, but at first it was obvious that their prejudices were against the *régime*, and some difficulty was encountered in keeping them continually out-of-doors and at rest. Fortunately, however, the first contingent of patients soon manifested remarkable improvement, and satisfied themselves that their strength, appetite, and spirits were increased by the open-air life. New-

comers have been taken in hand by the older patients, and now the difficulty is to get them in-doors at all."

I have given rather full details of the treatment in the hope that some of the readers of the "Annual" may be induced to try the method themselves.

The rationale of this plan of treatment, as Dr. Arthur Ransome[4] points out, is an abundance of fresh air sweeping over the patient, and flushing away all impurity; in other words, "hyper-aëration." "Exposure to the open-air means far more in quantity than the freest ventilation. It has been shown by Pettenkofer that, out of doors, the average velocity of the air currents is about 10 feet per second, or about 7 miles per hour. From this and some other data he calculates that 'in the course of an hour 324,000 cubic feet of air flow over one person in the open.' This is at least one hundred times the amount that is afforded in ordinary ventilation, and its scavenging work must be proportionally enormous. When the air is itself pure it must sweep away every particle of organic impurity. The air of living rooms, however cleanly these may be, always contains a large proportion of micro-organisms; and the mere cleansing of a room will often, for a time, materially increase the percentage of microbes floating about. Many of these are pathogenic organisms; and we may with great probability ascribe the disappearance of fever from our tuberculous patients, after a short exposure to the open-air treatment, to the almost total absence of streptococci or staphylococci. These organisms are always very abundant in the sick chamber, and they are found almost always associated in the lungs of phthisical persons. It is probable that these microbes are at least one cause of fever in cases of phthisis."

In last year's "Annual" a description is given of the best kind of sanatorium (p. 411).

One very important point is often overlooked, and that is that the tuberculous patient should not return to the environment in which he acquired the disease. Unfortunately in many instances this is advice which it is easier to give than to follow; still, if it is impressed upon the patient with sufficient force, he may be induced to make this necessary sacrifice. I was much struck recently with the rapid break-down of a young man who went out to South Africa for incipient phthisis, got quite well, returned to office work in London, and died within a year of phthisis.

Egger[5] tabulates the indications for residence in high altitudes as follows: (1,) For prophylaxis in cases where there is a supposed predisposition to tuberculous affections. In cases of latent tuberculosis

presenting the clinical features of anæmia, chronic gastric catarrh, etc.; (2,) Incipient phthisis, and the so-called cases of "apical catarrh"; (3,) Definite infiltration of the pulmonary apices; (4,) Cases where the affected tissue is beginning to break down. When there are cavities already present he considers only those cases suitable where the loss of substance is slight, and where the disease is not acute and the fever not continuous; (5,) Cases of chronic serous effusion in the pleuræ.

Egger groups the contra-indications under the eight following headings: (1,) Persons of the so-called "erethic" constitution, even when only "apical catarrh" is present; (2,) Advanced cases with cavities, hectic fever, and much emaciation; (3,) Cases where the tuberculous process has affected a whole lung, or where both lungs are much damaged, and the respiratory surface has therefore become too limited, even though the course of the disease be chronic; (4,) Cases where the larynx is greatly affected; (5,) Cases where there is albuminuria or considerable diabetes; (6,) Cases with advanced emphysema; (7,) Cases with severe valvular disease of the heart and arteriosclerosis; (8,) Alcoholics.

Ewart[6] lays stress "on a long unbroken residence in the high altitude" as the best form of treatment for nearly all sufferers from phthisis. He very pertinently asks why, if a summer spent in the Alps is the best of tonics for the over-worked and jaded, could it possibly be detrimental to the phthisical?

"As a fact, a climatic advantage is to be gained *at all seasons*, more marked it is true in winter, chiefly on account of the evils attending a winter residence in England, but not on account of any essential therapeutic inferiority of the Alpine summer. It cannot be too widely known that all seasons in the Alps are good for phthisis, and that as soon as a patient has been found fit to travel he cannot defer his journey without incurring a positive loss. A summer in the Alps is the best of all preparations for an Alpine winter. This is also the season of least risk for the invalid, when the journey can easily be so arranged as to break the suddenness of the change to a high elevation, which is always a source of some anxiety. In the depth of winter, too, the sudden change to an intensely cold atmosphere is not in itself desirable or always favourable. These risks are avoided by patients who take up their winter quarters before the weather hardens."

REFERENCES.—[1] "Lancet," June 11, 1898; [2] "Münch. med. Woch.," No. 1, 1898; [3] "Lancet," Mar. 5, 12, 26, 1898; [4] "Brit. Med. Journ.," July 9, 1898; [5] "Treatment," Oct. 14, 1897; [6] "Lancet," Nov. 20, 1897.

Part II.—NEW TREATMENT.

The Dictionary of New Treatment in Medicine and Surgery, 1899.

ABDOMEN (Surgery of). *Priestley Leech, M.D., F.R.C.S.*

L. A. Bidwell [1] writes in an article on abdominal exploration in obscure cases, that he believes that peritonitis is still dreaded in these cases. He gives a table and notes of thirty cases of laparotomy for chronic obstruction, and for diseases of the stomach, liver, and kidneys, with only one death, and a case of gastro-enterostomy which died on the tenth day from broncho-pneumonia. Four cases where abdominal pain was present and no definite diagnosis could be made were due to adhesions which were released, and cure followed after opening the abdomen. He also thinks that physicians do not ask the surgeon's aid in cases of pyloric obstruction for fear of a fatal result, but the operation for this condition is one of the least fatal in abdominal surgery, and these cases should be more frequently and earlier submitted to the surgeon.

Wounds of Abdomen.—Madelung [2] says every wound larger than a needle puncture of the organs within the abdominal cavity, stomach, intestine, biliary, and urinary channels, can give rise to extravasation of their contents into the abdominal cavity. There is no criterion as to whether normal urine or bile is in an aseptic condition, nor how long they may remain so, and the conditions for spontaneous cessation of hæmorrhage are particularly unfavourable within the peritoneal cavity. In cases, where a wound of a few hours' duration may communicate with the abdominal cavity, it is absolutely necessary to ascertain whether it is penetrating or non-penetrating. Laying the wound open under strict antiseptic precautions is of use only in a certain number of cases. In wounds of the back in stout people or of the chest leading into the abdominal cavity, or of the buttocks or perineum, an abdominal section will be found necessary. If possible the patient should be removed to a hospital and the wound left undisturbed, except for a heavy protective dressing, even if the viscera protrude. If the checking of hæmorrhage is urgently needed a

laparotomy may be hastily performed, and sponges and compresses packed about the site of the hæmorrhage and a compressive dressing applied with closure of the wound. Evisceration and "piece-meal" exploration of the intestine is to be avoided.

Senn's hydrogen test is dangerous and uncertain. Remove extravasation of visceral contents by mopping and not by irrigation; prolonged search for foreign bodies is unwise. In cases where twenty-four hours have elapsed after the injury the surgeon may wait, provided no viscera are prolapsed, no symptoms of peritonitis are present, and the general condition as shown by the pulse is good.

Vulliet,[3] from an analysis of three hundred and thirty-five cases of penetrating wounds of the abdomen, published since 1890, seventy-seven of which were treated by the expectant method, and two hundred and fifty-eight by laparotomy, has come to the following conclusions :—

In wounds of the abdomen caused by gunshot, by stabbing or cutting instruments : (1,) Enlarge the wound to establish whether it is penetrating or not, if penetrating, perform laparotomy; (2,) It is impossible to decide from signs or symptoms whether there is or is not a perforation of a viscus; (3,) Sure signs of perforation of the intestine, *e.g.*, fistula or evacuation of the bullet per rectum are very exceptional; (4,) Exploratory laparotomy is without danger; (5,) Spontaneous healing of intestinal perforations is rare; (6,) Early operation is to prevent the occurrence of peritonitis; if this is once established, death is almost certain, with or without operation; (7,) Deaths after operation are mainly due to the gravity of the lesions, and the results of laparotomy have been much improved; (8,) If seen for the first time, forty-eight hours after the infliction of the wound, and no abdominal symptoms are present, perforation of the intestine can be excluded almost certainly; if signs of peritonitis are present, abdominal section and washing out give the only remaining chance of recovery, and in this case deaths are due to expectant treatment and not to operation; (9,) Shock is no contra-indication to operation, for it is often due to hæmorrhage, and then stimulants and saline injections must be used, and the fear of the patient dying on the table must not preclude an operation; (10,) A long and median incision is best, and the peritoneal cavity must be washed out and drained; (11,) These conclusions apply to civil life; in war, owing to a lack of experience, the question of operation versus the expectant treatment must be considered still unsettled.

Drainage.—Dr. Delagénière[4] uses a nickel tube which has several holes in its lower end. A wick of absorbent cotton is introduced into

the tube, the wick fills the calibre of the tube and at each end it is spread out; one end is in the abdominal cavity and the other is outside. This method has given excellent results.

Engström[5] finds that fatal paralysis of the intestine is not always due to sepsis. Four cases died with this condition on the third, seventh, eighth, and tenth days respectively, after the abdominal operation. In not one was there a trace of peritonitis, which Engström observes would have been the case had sepsis existed, considering that death occurred relatively late.

In the last case the contents of the peritoneal cavity were examined for bacteria and found to be sterile. He thinks free nourishment and judicious stimulation of the patient are the best means of warding off fatal results when the bowels are paralysed.

Doran[6] says that hernia after abdominal section is an accident of no great rarity. If it attain a large size it may become a direct source of danger demanding surgical steps for its relief. He says that Greig Smith's description can only apply to a very early stage of the hernia, and even at this stage Doran would hesitate to operate without opening the peritoneum. Secondary sacs and burrowing of omentum and intestine are observed in this form of rupture, just as in umbilical hernia. Firm adhesion of the intestine to the cicatrix is frequent. There may be a tense narrow neck; two cases of this he describes. No method of suturing seems to prevent the formation of a hernia. Statistics about the advantage of different sutures in this respect are untrustworthy, because hernia may not appear for several years. The patient is often to blame for the complication, by discarding proper supports too early.

Woolsey[7] in an article on abdominal incisions emphasises the following conclusions: (1,) Abdominal incisions, except those in or close to the median line, should be obliquely transverse in order to run parallel to the nerves (and thereby also the cleavage lines of the skin), so as to avoid partial paralysis of the muscles, weakness of the abdominal wall, and a tendency to hernia; (2,) Intermuscular or even transmuscular incisions should be preferred to those in the linea alba or semilunaris, for in both the latter cases the cicatrix is less strong and more prone to hernia, and in the semilunar line the nerves are necessarily divided; (3,) In place of the median vertical incision the intermuscular incision near the inner margin of the rectus, or the trap-door incision around this inner margin, offers many important advantages.

Siegel[8] has a paper on "The diagnosis and therapy of penetrating wounds of the Abdomen." It is a long and interesting paper and

contains notes of six cases of rupture of internal organs without wound of the abdominal wall, and seven cases with wounds of the organs and abdominal wall. Of the latter, all were operated on, and one (a stab wound of the stomach) died. He draws attention to the mortality of the operation increasing with the time that has elapsed since the infliction of the injury before they come under the surgeon's care. During the first four hours after the injury laparotomy gives a mortality of 15·2 per cent.; in five to eight hours after the injury the mortality rises to 44·0 per cent.; when a period of twelve hours has elapsed after the injury it rises to 70 per cent. Stab wounds give a better prognosis than shot wounds; the mortality of the former in the first twenty-four hours being 8·7 per cent.

The mortality of cases treated on the expectant plan is 55·2 per cent.; of cases treated by operation, 51·6 per cent. This last figure is high, partly because late operations are included, and partly because numerous cases are included which would be treated by operation on account of existing peritonitis by those who believe in expectant treatment. These figures are founded on nine hundred and ten cases gathered from various sources. Another point to which he draws attention is that the symptoms bear no relation to the gravity of the lesion. Several patients with shot wounds, even of the inferior *vena cava*, have walked after the injury and often the chief complaint is of pain.

He recommends washing out the abdominal cavity with some indifferent fluid, *e.g.*, salt solution; he has used as much as 25 litres (40 pints) in some cases where the abdominal cavity was filled with particles of food and fæces. In cases where the intestines have been wounded he thinks it is better to drain the abdomen by means of pieces of gauze; opium should not be used, but morphia may be given hypodermically to relieve pain.

REFERENCES.—[1] "West Lond. Med. Journ.," July, 1897; [2] "Beiträge z. klin. Chir.," Band xvii, Heft 3, also in "Annals of Surg.," Sept., 1897; [3] "Rev. méd. de la Suisse Rom.," May, June, July, 1897, quoted in "Brit. Med. Journ.," Epit., Sept. 25, 1897; [4] "Rev. de chir.," May, 1898; [5] "Centralbl. f. Gynäk.," No. 36, 1897, quoted in Epit. "Brit. Med. Journ.," Oct. 16, 1897; [6] "Lancet," p. 1379, Nov. 27, 1897; [7] "Annals of Surg.," Jan., 1898; [8] "Beiträge z. klin. Chir.," Band xxi, Heft 2.

ABDOMINAL DISEASE: PAIN AS A DIAGNOSTIC SYMPTOM.

Prof. A. W. Mayo Robson, F.R.C.S.

Though pain may be absent in some few examples, it is present at some stage of the disease in the greater number of abdominal

affections, and its character and course frequently afford the most valuable means at the disposal of the surgeon for interpreting and diagnosing ailments which sometimes present few physical signs.

A history of the onset of pain may show the origin of a more general trouble; for instance, in the diffused pain of general peritonitis it is of the utmost importance to know where the pain was first felt, and if a similar seizure had ever been experienced before.

If the pain began over the cæcum or at the umbilicus, it is not unlikely that the trouble will have started in the appendix vermiformis, and if there is well marked tenderness at some point between the right anterior superior spine and the umbilicus the diagnosis will be rendered much more probable; but if with these signs there is a history of several similar attacks, in which the pain was limited to the cæcal region and subsided after rest and treatment, the diagnosis of recurrent appendicitis, ending in general peritonitis, will have been rendered almost certain.

If, however, the history of the onset of pain is referred to the right side of the upper abdominal region beneath the right costal margin, and the patient describes having had previous attacks of pain in that situation passing backward to the right infra-scapular region, and especially if some of these seizures have been followed by jaundice, more or less severe, the diagnosis of peritonitis starting in the gall-bladder will be rendered clear, and the case may be dependent on a gallstone having ulcerated its way from the gall-bladder or ducts into the peritoneal cavity, or, possibly, on a phlegmonous or gangrenous cholecystitis.

In general peritonitis, starting from perforated gastric ulcer, the pain, though ultimately diffused, will have been first felt over the upper abdominal region, probably just below the ensiform cartilage, where tenderness will be elicited on pressure, and the history will point to pain after food and probably to dyspepsia of long standing, though in one case of perforated gastric ulcer on which I operated successfully, there was an entire absence of gastralgia for some months before the perforation.

Where the origin of the peritonitis is in the pelvis, for instance, in the ovaries or tubes, the onset will usually be referred to the lower abdominal region, right or left, according to the side affected, and a referred pain may be expected in the corresponding infra-mammary region.

In localised peritonitis, the pain is usually referred to the region affected, and remains there; radiating, however, in certain well-defined directions, according to the organ involved: for instance,

gall-bladder pain radiates from the right costal margin towards the umbilicus and backward towards the right infra-scapular region; stomach pain radiates from the upper abdominal, backward to the left infra-scapular region; right or left kidney pain passes from the loin and right or left abdominal region, along the course of the corresponding genito-crural nerve.

Where the pylorus and gall-bladder have become adherent, as the result of local peritonitis produced by gall-stones or by some form of cholecystitis, the tender point may be elicited between the ninth costal cartilage and the umbilicus, but the pain will not only pass round the right side, but will also radiate to the left infra-scapular region.

If the pyloric trouble be associated with ulceration, the history of pain from half-an-hour to an hour after food will be associated with tenderness above and to the right of the umbilicus, and with a pain radiating to the left, thus distinguishing it from the pain of cholelithiasis.

In one case I found left shoulder-tip pain associated with malignant disease of the corresponding kidney, this being probably due to the presence of twigs of the left phrenic nerve in the corresponding semilunar ganglion, which sends branches along the left renal artery.

In disease of the liver, the characteristic right shoulder-tip pain is well known, but with it there will usually be well-marked pain or tenderness over the liver itself.

The pain of ovaritis and salpingitis usually follows the course of the corresponding genito-crural nerve, but there are also pain and tenderness over the right or left side of the inferior abdominal and, sometimes, infra-mammary regions.

In intestinal pain, the pain is often referred to the back as well as to the abdomen, and the position of the dorsal pain is usually higher the nearer to the stomach the disease is situated, the range being from the sacral region in rectal disease to the lower dorsal region in affection of the small intestines, the explanation being in the communication between the sympathetic nerves passing along the blood-vessels of the affected part and the corresponding spinal nerves.

One example will suffice to explain this: In appendicitis and perityphlitis, although the disease is in the cæcal region, the first pain complained of is nearly always at, or just above, the umbilicus, the reason being, that the appendix and cæcum receive their blood supply from the superior mesenteric artery, and the nerves accompanying the branches of this vessel communicate with the spinal nerves whose peripheral distribution is at or above the umbilicus. I have seen the

abdomen opened in the epigastric region because of a want of knowledge of this fact, under the idea that the peritonitis was dependent on perforated gastric ulcer, whereas the pain above the umbilicus was a referred one from a perforated appendix.

The character of the pain is equally important with the site; colicky pain is usually relieved; whereas inflammatory pain is intensified by pressure, and colicky pain is usually intermittent, while inflammatory is continuous.

Localised colicky pain of irregular onset, often at long intervals, is usually due to gallstones, to renal calculus, or to appendicitis, the painful attacks being associated in each case with symptoms referable to the liver, the kidney, or the bowel: thus in well-marked cases rendering the diagnosis easy, but in the slighter cases the course of the pain may be the only means of enabling a diagnosis to be arrived at.

The following diagram (*Fig.* 11) shows the tender spot characteristic of each disease, but besides the tender spot, the course of the pain towards the right infra-scapular region in cholelithiasis, towards the umbilicus in appendicitis, and along the genito-crural nerve in renal disease is of great diagnostic importance.

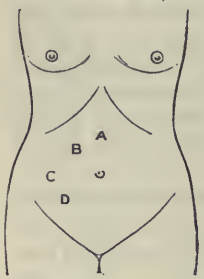


Fig. 11. — A, Common Bile Duct; B, Gall-bladder; C, Kidney; D, Appendix.

Neuralgic or neurotic pains are irregular and indefinite, often lasting for long periods and then disappearing without apparent cause; they are frequently periodical, as in the case of other neuralgiæ, and they fluctuate with the state of the general health.

We should not forget, however, that many so-called visceral neuroses are merely a cloak for ignorance, and that the pain is caused by something too subtle for our diagnosis: thus visceral adhesions are a fertile source of discomfort and disability, and I have been fortunate in relieving or curing many cases of most distressing abdominal affections said to be neurotic, by detaching adhesions of the pylorus to the liver or gall-bladder, of ovaries and tubes to the rectum or other part of the intestinal canal, of the sigmoid flexure to glands at the pelvic brim, and of small intestine to old caseated glands at the back of the abdomen.

Again, strictures or kinks of the pylorus, or of the intestine, not sufficient to cause obstruction but well-marked enough to produce distress, should not be forgotten.

Formerly, many cases of gallstones or renal calculi, which pro-

duced pain without other physical signs, were described as neuroses, as were slight cases of recurrent appendicitis and cases of salpingitis or of ovaritis, all of which are now easily recognised and capable of cure.

Pain or its absence in cases of obstructive jaundice frequently affords a very valuable guide in making a diagnosis between gall-stones and cancer of the liver, bile ducts, or head of the pancreas.

In cancer of the liver the jaundice is often slight, being dependent on associated catarrh of the bile ducts, and there is usually an absence of pain.

In cancer of the head of the pancreas the jaundice is very deep ; there is an entire absence of pain, and a tumour of the gall-bladder, free from tenderness, can usually be felt.

In cases of gallstones in the common duct, there is nearly always a history of previous attacks of so-called spasms, it may be years ago, and then of a sudden, severe seizure followed by jaundice which varies from time to time in intensity. The pain is referred to the epigastrium and radiates to the midscapular region, not more to the right than the left, unless there are gallstones in the gall-bladder also.

The tender spot is midway between the umbilicus and ensiform cartilage, and there is almost, without exception, an absence of enlargement of the gall-bladder.

Though genito-crural pain is characteristic of renal or ureteral trouble, it must not be lost sight of that an inflamed appendix, adherent over the genito-crural nerve, may produce symptoms somewhat resembling renal calculus, both in intermittency and in being increased by exertion, but the absence of blood in the urine on repeated examinations and the other signs of appendicitis, which are ordinarily present, will enable the diagnosis to be made.

In intestinal obstruction, due to a band or volvulus, it will frequently be found that the site of the lesion is indicated by superficial pain at a corresponding part of the abdominal wall ; thus in three cases of volvulus of the small intestine, that have come under my notice, the volvulus was distinctly located by the superficial pain, and on placing the hand there, a firm swelling could be felt, which on being cut down upon proved to be a loop of twisted gut.

The site of pain in chronic intestinal obstruction is also of great moment, and the point already mentioned concerning dorsal pain in intestinal lesions should also be borne in mind, as it, together with local pain, will often point to the true site of disease, whereas the pain nearly always felt over the cæcum in cases of chronic obstruction of

the bowels is merely indicative of a distended caput coli from obstruction below, possibly even in the rectum.

To the experienced, other points will probably occur which may have been omitted in this paper, but I think enough evidence has been given to prove that a careful study of pain in its various aspects is well worthy of consideration in making the diagnosis in any abdominal case.

ABORTION. *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Etiology.—The causes of habitual abortion are thus summed up by Charpentier[1]:—

Constitutional causes: (1,) Syphilis; (2,) Lead poisoning; (3,) Tobacco poisoning; (4,) Heart disease.

Local causes: (1,) Malformations of the uterus; (2,) Displacements of the uterus; (3,) Active congestion of the uterus, and especially of the cervix; (4,) Diseases of the cervix or body of the uterus.

Malformations.— In these cases the uterus has preserved some of the characters of the infantile uterus, the body being disproportionately small or the cervix disproportionately large. Distension of the uterus by the growing ovum causes severe attacks of uterine colic and sympathetic disturbances, which commence during the second month, and usually lead to abortion about the third or fourth month. These cases are not common, because fecundation is rare in the malformed uterus.

Displacements.— Flexions are of more importance in this connection than either versions or prolapse. In ante- or retro-flexions there is a thickening of the uterine tissue at the angle of flexion, which interferes seriously with the progress of pregnancy, and leads to repeated abortion at the third or fourth month. Little can be done to remedy this condition.

Congestions.—In the case of women who habitually lose freely at the monthly periods it is not uncommon to find that during pregnancy they have a periodic loss of blood, accompanied by pain, especially during the latter months. In plethoric women these hæmorrhages during pregnancy are beneficial, and should not be arrested. Nevertheless, the pain and hæmorrhage may overstep the mark and be associated with abortion.

Diseases of the Uterus.—Endometritis, new growths of the body of the uterus, and extensive erosion of the cervix, usually lead to abortion. Commenting on Charpentier's remarks, Eden[2] observes that deep laceration of the cervix is often attended by habitual abortion at about the mid-term of pregnancy. It is apparently due to the fact that when the upper portion of the cervix becomes expanded by the growing

ovum, the lower torn portion fails to give it efficient support, and in the result the ovum is thrown off. Repair of the cervix in these cases enables the uterus to carry the ovum to term.

Indications for the Induction of Abortion.—Jeffé,[3] after a study of the literature of the last ten years, fixes the indications for the induction of abortion as follows: (1,) Uncontrollable vomiting of pregnancy; (2,) Incarceration of the gravid uterus; (3,) Obstructions of the pelvic outlet by tumours or exudates; (4,) Progressive and pernicious anæmia; (5,) Grave chorea.

Jeffé gives the following relative indications: (1,) Great contraction of the pelvis with the conjugata vera below five centimetres; (2,) Pulmonary emphysema, with signs of degeneration of the heart; (3,) Nephritis, especially with eclampsia; (4,) Chronic heart disease; (5,) Other general diseases of the mother which would jeopardise her life at the time of delivery.

Induction of Abortion.—For this purpose Stieda[4] has applied the method that is now well-known for the induction of premature labour, the use, namely, of elastic bags. To introduce the bag a speculum is sometimes necessary; he takes the precaution to force air out of the bag before its introduction, and to fill it with sterile water. He reports three cases so treated; the abortion was generally concluded in about seven hours, the use of the bag being necessary for between one and two hours.

TREATMENT.—A good summary of this subject is given by Garrigues.[5] Treatment is prophylatic or curative; the former is especially called for in cases of habitual abortion, in which a history of syphilis is so frequently elicited; and by instituting specific treatment of the husband, the wife, or both, it may be possible for pregnancy to be completed. It may be necessary for the patient to change her occupation or location of residence, especially if the latter should be in a malarious district. Sometimes a uterine displacement exists which may be remedied before pregnancy occurs.

Charpentier believes that in cases of habitual abortion due to cervical endometritis the use of the curette to the pregnant cervix has undoubtedly allowed pregnancy to proceed to term in many instances where the patient would have miscarried without such treatment. In short, the curette prevents instead of provoking abortion in these cases. Lefour applies intra-uterine stems to the uterus of a non-pregnant woman, who has suffered from habitual abortion, as he finds that such treatment overcomes the individual intolerance of the uterus, and makes it bear the presence of an ovum.

Where no cause is to be found, the patient should be kept in bed

for a week at the time when menstruation is about due, and should be given **Yiburnum** during that time and general tonics in the intervals.

Where abortion is merely threatened, **Rest** in bed and the exhibition of viburnum, **Opium** and **Salines,** with the local application of an **Ice-bag** to the hypogastrium will often be successful in arresting it. If hæmorrhage is considerable or has continued long, if the cervical canal is open, if the ovum is felt projecting into the vagina, abortion is inevitable, and then the sooner the uterus is emptied the better it will be for the patient.

When interference is indicated, Garrigues advocates instrumental dilatation of the uterine canal and removal of the ovum at the same time, a curette being employed if necessary. In septic cases, however, this is generally contra-indicated.

Lea,[6] on the contrary, is more disposed to let the expulsion of the uterine contents take place spontaneously, on the ground that any manipulation increases the risk to the patient to a great extent. And so he advises large doses of **Ergot,** and tamponade by means of lint soaked in 1 in 3,000 perchloride solution, and firmly packed into the posterior fornix.

Goldberg[7] holds that even when the uterus has emptied itself naturally curettage should be done as a matter of routine, in order to prevent subsequent trouble. For he maintains that although deaths after abortion are rare, yet subinvolution and displacement, and diseases of the endometrium and connective tissue, often enough follow it. The bad results are in most instances traceable to the retention of parts of the ovum or membranes. It is most difficult to determine whether or not the uterus has completely emptied itself after an abortion during the early months of pregnancy, and by making use of a curette in every case, the patient is given the best chance of complete recovery. Goldberg has not found it necessary always to tell his patients that a curettage was to be performed, and does not employ an anæsthetic. In all cases he uses a Sims' sharp curette, and has never seen any accident result from it.

In the treatment of incomplete abortion some obstetricians adopt a purely expectant treatment, while others resort to surgical intervention without delay.

Schwab,[8] though an advocate of the latter plan yet recognises that instrumental means have their dangers, and inasmuch as ergot has inconveniences he advises the use of **Sulphate of Quinine.** It is a powerful oxytocic, but it does not send the uterus into a state of tetanic contraction as ergot often does. He has used it in seven cases, with the result that the uterine contents were expelled in about four

and a half hours. It is given in two doses of 8 grains, with an interval of ten minutes intervening ; and it has set up uterine contractions, even when these had been absent for hours or even days.

REFERENCES.—[1] "Ann. de gynéc. et d'obstét.," May, 1897 ; [2]"Treatment," May 13, 1897 ; [3]Quoted in "Med. Times and Hosp. Gaz.," June 3, 1897 ; [4]" Monats. f. Geb. u. Gyn.," vol. v., part 3, 1897 ; [5]" Med. News," Nov. 6, 1897 ; [6]"Treatment," Nov. 11, 1897 ; [7]" Buffalo Med. Journ.," Aug., 1897 ; [8]"Rev. méd. chir. des mal. de femmes," June 25, 1897.

ABORTION (Spurious). *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Under this heading Eden[1] has described a condition to which, we believe, he was the first to call attention. It consists in a mimicry of early pregnancy and abortion. It is to be distinguished from spurious pregnancy, in that it is not associated with hysteria, and the usual functional disturbances of pregnancy are not exaggerated ; moreover, it is characterised by definite changes in the uterus. It differs from pregnancy, topic or ectopic, in the essential point of the absence of an ovum, either within or without the uterus. It mimics abortion in the occurrence of a period of amenorrhœa with enlargement of the uterus, and the formation within it of a body the detachment and expulsion of which is followed by a return to menstrual regularity and the former condition of the general health. The body expelled is not an ovum, but is formed entirely from maternal structures.

The author's description is based on three cases, one of which came under his own observation, while the other two had been reported by Griffith[2] under the title of "A note on the importance of a decidual cast as evidence of extra-uterine gestation" ; and by Dakin[3] as "A cast from the uterus having all the characters of the decidual membrane found in connection with ectopic gestation." In both these cases the patient was believed to be the subject of extra-uterine gestation, and was operated upon accordingly ; in both, the tubes were found to be quite healthy, and there was no trace anywhere of ectopic pregnancy. Eden concludes that in these two cases pregnancy, either extra- or intra-uterine, could with certainty be excluded ; the former by direct examination and handling of the pelvic viscera, the latter by the characters of the decidual cast, which consisted in each case of well-formed decidual tissue with characteristic "decidual cells," numerous leucocytes, glands and blood-vessels ; but there were no chorionic villi, and no masses of fœtal epiblast in any part. By the kindness of Drs. Griffith and Dakin, Eden was able to re-examine these casts.

His own case (*Fig.* 12 and *Plate I*) was as follows[4] : The patient

who was under the care of Dr. Herman, was a multipara, who had had seven previous pregnancies, the last about two years ago. Menstruation was perfectly regular up to December 6th, 1896, the date of cessation of the last period, but no further loss occurred until February 21st, 1897, a period of eleven weeks' amenorrhœa. Hæmorrhage then set

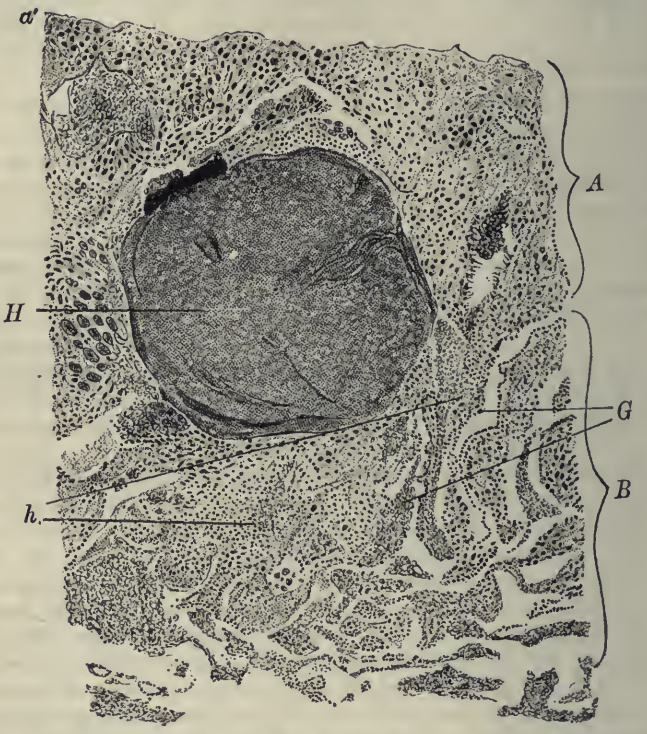
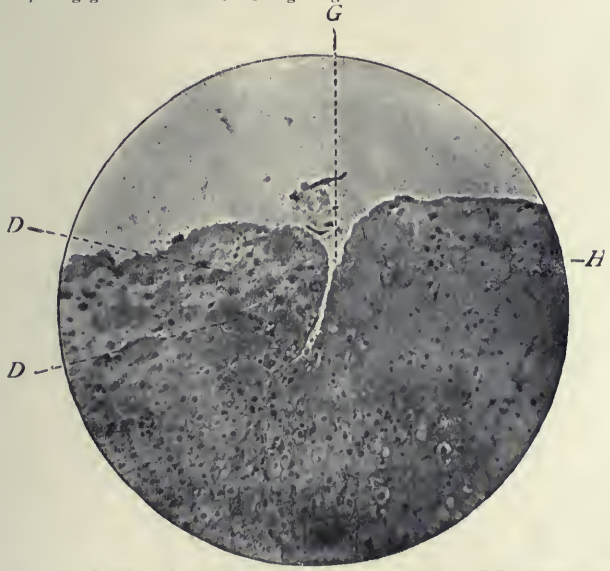


Fig. 12.—Author's case: Vertical section through the membrane; *A*, Superficial compact layer; *a'*, Limiting layer of flattened cells; *B*, Deep cavernous layer; *G*, Gland acini, dilated; *H*, Large central hæmorrhage; *h'*, Small interstitial hæmorrhages.

in, and on the following day a fleshy mass was expelled, which was at first thought to be an abortion; the bleeding thereafter ceased, and the patient made an uninterrupted recovery. During the period of amenorrhœa there had been morning sickness, but not so severe as she had usually experienced, so that the patient herself doubted if she was pregnant. Examination of the pelvic organs showed nothing abnor-

PLATE I.

Author's case: Small area more highly magnified; *AA*, Arteries with thickened walls; *a'*, Artery with commencing thickening at one side; *D*, decidual cells; *G*, Long glandular channel showing irregular dilatations.



Author's case: Surface of membrane more highly magnified; *DD*, Degenerating decidual cells; *H*, Large extravasation; *G*, Mouth of a glandular channel.

mal, and there was nothing in the history to suggest the existence of extra-uterine gestation ; the patient recovered without a bad symptom, and has since remained in good health.

The "fleshy mass" was found to be a triangular cast of the uterus, measuring 4 inches in length by 3¾ inches across the base, and in thickness varying from 3 to 8 millimetres. The outer surface was rough and uneven, the inner dull, glistening, and thrown into numerous longitudinal folds. There was a good deal of interstitial hæmorrhage at the apex of the cast, but not in other parts. No trace could be seen of placental tissue or a placental site, and no chorionic structures could be found, although an exhaustive microscopic examination was made of all parts ; the tissue was a decidual membrane.

Microscopical Characters.—The cast resembles the decidua of pregnancy in the following points :—

(1,) The connective tissue stroma is converted almost entirely into "decidual cells."

(2,) The membrane is roughly divided into a superficial compact, and a deep cavernous layer ; in the former the uterine glands have almost disappeared, in the latter they persist as somewhat dilated spaces. But the distinction is not quite so precise and well-defined as in the decidua of pregnancy.

(3,) The surface epithelium is lost, and the membrane is limited by a layer of flattened cells ; the mouths of the glands have disappeared.

There are, however, one or two points of distinction from the decidua of pregnancy :—

(1,) The characters peculiar to the decidua serotina are entirely absent. These characters are : (*a*,) invasion of the tissues by chorionic villi and masses of fœtal epiblast ; (*b*,) the formation of the maternal placental sinuses. In other words, the changes which take place in the dicidua at the point of implantation of the ovum are absent.

(2,) In two of the three specimens here described, the decidual arteries are the seat of well-marked endarteritis obliterans, and following no doubt upon this condition, the decidual cells and capillary walls in many parts show fatty degeneration. It may be that these arterial and other changes are not due to any definite pathological factor, but represent the natural process of preparation of the membrane for its exfoliation.

Finally it must be added that the microscope alone does not suffice to distinguish these casts from those which are often met with in extra-uterine gestation.

The author then defines the condition to which he has given the term "spurious abortion" as follows : It is "the development within

the uterus, in the absence of uterine or extra-uterine gestation, of a membrane having the essential characters of the decidua of pregnancy and accompanied by the signs of early pregnancy; and its separation and expulsion from the uterus, with hæmorrhage, thus simulating an abortion."

Diagnosis is of course impossible until after the discharge of the cast. It then consists of two distinct steps: (1,) The exclusion of uterine pregnancy by careful microscopic examination of the cast, which demonstrates the absence of chorionic tissues; (2,) The exclusion of extra-uterine pregnancy. This may be a matter of some difficulty, and must be very carefully considered in every case.

Etiology.—According to Eden, only two explanations are possible: (1,) That an ovum was actually fertilised, but perished at a very early period without leaving traces of its presence, while the "genetic reaction" in the uterus and in the general organism progressed as in developing pregnancy.

(2,) That some stimulus other than the presence of a fertilised ovum in the genital tract may lead to the formation within the uterus of a complete decidua, and may hold the menstrual functions in abeyance.

Of these two explanations the first seems the more probable; for, in the author's words: "The latter is a large assumption, and forms a complete reversal of the time-honoured and universally accepted view of the relation of the decidua to pregnancy alone. For this reason, if for no other, we should hesitate to adopt it. But if, in the future, it should be shown that cases of this kind may occur in women who have not been exposed to the risk of conception, we should then be compelled to reconsider this view. If we exclude pregnancy, then we must discover some other causative factor. It has been known for some time that scattered clusters of "decidual cells" may occur in the stroma of the endometrium in conditions other than pregnancy, and I have myself several times seen them in curettings from the endometrium of women who have never to their knowledge been pregnant. But it has not yet been shown that a complete decidua may be formed and shed in such cases, and we are therefore thrown back upon the first supposition.

"Upon this view the ovum if situated in the uterus must have perished within the first fortnight, otherwise its site of implantation would have been discoverable. If situated in the tube it might possibly have developed somewhat further than this without giving rise to gross changes recognisable on palpation. It is clear, however, from the size of the cast in the second and third cases that if this view be correct the uterine changes must have progressed considerably after

the death of the ovum occurred ; although contrary to our experience of what occurs in "missed abortion," this is not impossible, and does not involve such large assumptions as in the case of the alternative theory just discussed."

At present therefore we must regard "spurious abortion" as closely allied to "missed abortion," but differing from it so widely in the absence of an ovum as to require a special name.

If the author's view should be endorsed by other observers, then the discharge of a decidual cast must no longer be regarded as pathognomonic of extra-uterine gestation.

REFERENCES.—[1]"Brit. Med. Journ.," Nov. 20, 1897 ; [2]"Trans. Obst. Soc., Lond.," vol. xxxvi. ; [3]Ibid., vol. xxxvii. ; [4]Ibid., vol. xxxviii.

ABSCESS. *Priestley Leech, M.D., F.R.C.S.*

Hepatic Abscess.—Fontan,[1] who has had much experience in the treatment of hepatic abscess advises: (1,) A very large opening in the region where the presence of pus has been made out ; (2,) Suture of the costal to the diaphragmatic pleura where the chest is opened, and suture of the parietal to the hepatic peritoneum when the abdomen is opened ; (3,) In methodical and prudent, though complete curetting of the wall of the abscess cavity. The seat of election in opening a hepatic abscess is the axillary line or a little behind this, at the level of the eighth, ninth or tenth rib, a piece of the rib 6 to 8 cm. in length being removed.

Fontan endeavours to do a transpleural operation where possible. The curetting is done with uterine curettes, and it removes from the cavity the detritus and small masses of dead tissue which are often present in hepatic abscess. Neither hæmorrhage nor free discharge of bile is to be feared, as the blood-vessels and biliary ducts of the wall of the sac are closed by thrombosis.

Subphrenic, or Sub-diaphragmatic Abscess.—Waring,[2] in the Erasmus Wilson Lectures, gives the pathological causes of this affection as follows :—

(*a*,) *Traumatic Causes* : An injury of the hepatic region either perforating or non-perforating, more commonly the latter, may become the starting point of a sub-phrenic abscess.

(*b*,) *Affections of the Stomach* : Chronic non-malignant ulceration is the most frequent cause. Malignant ulcers also may cause it. Ulcers in the region of the lesser curvature are more likely to give rise to sub-phrenic abscess than those in the greater curvature.

(*c*,) *Affections of the Duodenum*: *Ulcers of the Duodenum or Pylorus.* In this case the abscess is usually situated primarily on the right side, but when it is extra-peritoneal it extends to both sides.

of the middle line. In traumatic rupture of the duodenum the lower part is usually injured, and then the extravasated matter tends to pass downwards, and does not cause a sub-phrenic abscess.

(*d*,) *Affections of the Small Intestine*: The portion of the small intestine which lies below the duodenum is rarely the seat of an ulceration which causes the development of a sub-phrenic abscess.

(*e*,) *Affections of the Large Intestine*: Sub-phrenic abscess may arise in two ways, from chronic non-malignant, and occasionally malignant, ulceration of the cæcum and vermiform appendix: (α,) Ulceration and perforation of the appendix may lead to a collection of pus in the right iliac fossa behind that portion of large intestine which is not covered with peritoneum. The pus may then extend upwards behind the colon and in front of the kidney until the sub-phrenic space is reached; (β,) Septic absorption from ulceration of the large intestine, conveyance of the septic matter to the liver by the portal vein, formation of hepatic abscess, and extension of this to the sub-phrenic space.

(*f*,) *Affections of the Kidney and Perinephric Tissue*: A suppurative affection of a kidney, especially the right one, may first extend to the perinephric tissue and then upwards to the space between the bare area of the liver and the diaphragm, and then cause an abscess in this situation. It has also occurred from traumatic rupture of a kidney, hæmorrhage into the perinephric tissue and extension of this into the sub-phrenic region, and this collection of blood becomes infected by micro-organisms and forms a sub-phrenic abscess.

(*g*,) *Inflammatory Conditions of the Gall Bladder or the Bile Duct*: When the gall-bladder becomes inflamed, the free portion of the sac may become adherent to the anterior abdominal wall and the diaphragm, and if perforation occur, and septic matter passes from the gall bladder into the space between the right lobe of the liver and the diaphragm, an intra-peritoneal sub-phrenic abscess will result. Suppuration of the intra-hepatic bile ducts may lead to the formation of a liver abscess, and this may rupture into the sub-phrenic space.

(*h*,) *Diseases of the Thoracic Viscera*: Localised collections of pus in the lower part of the pleural cavities or gangrene of the base of the right lung, may, by direct extension through the diaphragm, cause suppuration in the sub-phrenic space. Tuberculous or other disease of one or more ribs or costal cartilages may extend inwards, perforate the diaphragm, and become the direct exciting cause in the formation of a sub-phrenic abscess. This is, however, rare.

(*i*,) *Suppuration in a Hydatid Cyst*: A hydatid cyst in the sub-phrenic space, in the upper part of the liver, in the upper portion of

the spleen, or between the spleen and diaphragm, may suppurate, and so cause a sub-phrenic abscess.

(*j*) *Pyæmia*: Metastasis is a somewhat frequent cause of sub-phrenic abscess.

TREATMENT:—Evacuate and drain the abscess. The pus may be reached by three routes, viz.: through the abdominal wall immediately below the costal margin; through the thoracic wall by resection of one or more ribs, and incision of the pleura and diaphragm; or through the lumbar region by an incision immediately below the lower border of the last rib. The locality and connections of the abscess determine which of these routes should be adopted. The method of treatment by incision through the abdominal wall is the best. If due to kidney mischief open in the loin, and if an empyema is also present open through the thoracic wall.

REFERENCES.—[1] "Bull. et méd. de la Soc. de chir.," No. 7, 1898; quoted in Epit. "Brit. Med. Journ.," April 23, 1898; [2] "Brit. Med. Journ.," March 12, 1898.

ACNE.

There have been no recent additions to our knowledge of the treatment of acne, which has been very fully considered in former editions.

The following synopsis of the article by Prof. Unna of Hamburg, and Dr. Norman Walker, which appeared in our 1896 edition, may be useful for reference:—

Synopsis.—(Vol. 1896, p. 153.) Friction with **Marble Dust** or **Pumice Stone**. Holsten advocates **Arsenic** at a late stage. Winfield used **Ergot** if menstruation is irregular. Massage is deprecated by the believers in the specific acne bacillus theory, on account of spreading infection. Schütz condemns glycerin or glycerin soap, and uses a weak solution of **Acetic Acid** for washing face after using soap. Philippson opens pustules and covers them with **Salicylic Plaster**, 50%. ℞ Naphthol, 10 parts; Vaseline, Sapo. Viridis, āā 20 parts; Sulph. Præcip., 50 parts. M. et ft. pasta (Lassar). ℞ Camph. Trit., Vaseline, āā 10 parts; Pulv. Cret. Alb., 5 parts; Sapo. Virid., 15 parts; Sulph. Præcip., 50 parts. M. et ft. pasta (Lassar). ℞ Resorcin, Amyli Puri, āā 5 parts; Vaseline, 15 parts; Zinci Ox., 5 parts; M. et ft. pasta. And the following wash: ℞ Ac. Acet. Conc., Tinct. Benzoini, Sp. Camph., āā 6 parts; Spirit q.s. ad 100 parts. M. *Sig.*—Apply with sponge night and morning (Lassar). Purdon advises **Oil of Amber**; Jamieson, a mixture of **Ichthyol**, 1 part; **Water**, 3 parts; Walter Smith, application of **Pure Carbolic** covered by **Flexible Collodion**.

ACNE ROSACEA.

Synopsis.—(Vol. 1898, p. 91.) Local subcutaneous injections of 95% **Alcohol**, 20 to 30 drops three times per week. Rectified **Oil of Turpentine** rubbed in once daily. Removal of constitutional causes, regulation of diet, together with reducing agents such as **Sulphur**, **Ichthyol**, **Resorcin**, **Salicylic Acid** alone, or in combination. ℞ Calcis Vivæ, ʒss; Sulph. Sublimat. ʒj; Aq. ʒx. M. Coque ad ʒvj, divide et filtra. Apply filtrate at night, and

an ointment in the morning. In advanced cases **Electrolysis, Scarifications** by Vidal's scarifier, or Unna's modification of the Paquelin cautery. Lassar advises for red nose: (1,) Exfoliation by 15 to 20% **Resorcin Paste**; (2,) **Scarification**; (3,) Better still **Acupuncture**. Ablation for hypertrophic tissue of rhinophyma, covering surface with **Thiersch Grafts** or **Iodoform Collodion**.

ACTINOMYCOSIS. *T. Colcott Fox, M.B.*

Bérard points out that **Iodide of Potassium** was used for actinomycosis in veterinary practice in France long before Thomassen, of Utrecht, brought it into notice as a specific for this disease in 1885. The Illinois Veterinary Commission reported 71 per cent. of cures, but many French veterinarians have not been so successful. Results are more successful in tongue cases than in bone and visceral implications. Results in man have varied greatly. It is agreed that the drug does not act on the parasite itself, as cultivations of the fungus in the usual media are not influenced by it in any way. The drug, to be efficacious, must be given in doses of from 1 to 6 grammes a day for some weeks. Some observers record immediate and lasting effects from its use; others, as the surgeons of the Lyons region, consider the surgical treatment of primary importance.

This divergence of views depends on the variation in the virulence of the disease, in its evolution in different individuals, in the difference existing in the receptivity of the tissues, and on the influence of secondary infective processes. In recent and purely actinomycotic lesions the results may be excellent; in old-standing cases, and where the ray fungus is associated with streptococci, staphylococci, and the bacterium coli commune, the drug treatment is less successful. The author's conclusion is that iodide of potassium should only be given alone in early uncomplicated cases. In the other stages, if, after a few weeks, the iodide is doing no good, the lesion must be dealt with surgically, and in a thorough manner, without delay.

REFERENCE.—Bérard: "Assoc. Franç. pour l'Avancement des Sciences," 1897.

ADENOIDS. *R. Lake, F.R.C.S.*

Functions.—The functions of these tonsillar masses, or as they are often named, pharyngeal tonsils, is, according to Spicer,[1] to prevent the ingress of pathogenic organisms, and act as scavengers to the nasal fossæ.

Symptoms.—Moulton[2] attributes the following symptoms to the presence of adenoids in adults: a feeling of a foreign body in the pharynx; a constant desire to clear the throat, the act of hawking giving no relief. These are exclusive of such ordinary ones as deaf-

ness, ear discharge, etc. In such cases one must not be surprised if there is only general thickening of the naso-pharyngeal vault, but this thickening must be removed surgically.

Spicer[3] directs attention to the listless and apathetic expression, so ably described by Guye as aprosexia, to the frequency of nasal eczema and coryza, the occurrence in these subjects of laryngismus stridulus, as well as slowness in eating, noisy breathing at meals, thirst at night, dead voice, headaches, and other signs of vaso-motor disturbances, and anomalies of temper.

Laryngeal stridor is an occasional consequence of this affection, according to E. Smith,[4] who gives the history of a case. A child, one month old, was brought to him suffering with such violent attacks of laboured breathing and stridor as to threaten the child's life. These attacks were worse after food, and at night. The adenoid growths were removed, as no other treatment did any good. There was nothing in the larynx to explain the symptoms. Smith is inclined to attribute the stridor to paralysis of the arytenoideus posticus, consequent on depraved nutrition, giving rise to over-stimulation of the accessory nucleus, this nerve disturbance being more from the effects of a post-nasal catarrh, than direct influence of the adenoids themselves.

Recurrence after removal is, according to Grant,[5] due less to any true return than to one of the following: (1,) Subsequent hypertrophy of the nasal mucous membrane; (2,) Neglect of constant nasal breathing; (3,) Anterior projection of the atlas; (4,) Fixed idea.

Influence on the Superior Maxilla.—Gleitsmann[6] attributes the high arched palate with teeth in their normal relationship, and the V-shaped palate with crowding out of the teeth, to loss of the support normally given by the tongue. This support is lost in mouth breathers. The high palate causes the septum to deviate. Siebermann,[7] on the contrary, writes to show that highly arched palates are equally common in people who do not develop adenoids. He has worked out a palatine index, by which he has demonstrated this. The index is obtained by dividing the height of the palate by the breadth between the second molars, and multiplying the quotient by 100. In those free from adenoids the index is 46, in those with them 45·9. The first series should really be 56, as all cases of deviated septa were excluded. The arching of the palate is in relation to the facial index (*i.e.*, distance from naso-frontal suture to edge of superior alveolar process, divided by extreme breadth of face and multiplied by 100). This is not influenced by adenoids.

Fatal Hæmorrhage during removal.—This result has now been *re-*

corded at least eighteen times, and it behoves all operators to use considerable caution during the operation; all violence is to be condemned. Schmiegelow[8] reports one case in which at the post mortem examination the internal carotid artery was found torn. This is not the only reported case during the previous year; as Preble[9] adds a case to the list of fatalities due to secondary hæmorrhage, and Hinkel, to those due to chloroform. The latter,[10] after examining the causation of death from chloroform in these cases, draws attention to these points: (1,) Statistics show an exceptionally high mortality from chloroform in operations for adenoids; (2,) Vienna pathologists have demonstrated the existence of a peculiar type of person liable to die under chloroform; to this class many adenoid patients belong. Hinkel's last point is that chloroform is not permissible as a general rule for these operations.

Kelly[11] shows that the internal carotid may by unusual tortuosity be visible in the pharynx, and so would be in danger if an operation were performed in such a case.

TREATMENT.—The size of the instrument now in use is considered by Chappell to be too large; this is especially the case in children. This authority is adverse to the use of forceps, his contention being that they are not safe. Chappell[12] himself uses a curette with a coarsely serrated blade.

REFERENCES.—[1] "St. Mary's Hosp. Gaz.," May, 1897; [2] "Laryngoscope," 1897; [3] "St. Mary's Hosp. Gaz.," May, 1897; [4] "Lancet," March 19, 1898; [5] "Journ. of Laryngol.," Aug., 1897; [6] Ibid., July, 1897; [7] "Munch. med. Woch." Sept. 7, 1897; [8] "Monatschr. f. Ohrenh.," xxvi., 1897; [9] "Boston Med. and Surg. Rep.," May 19, 1898; [10] "Laryngoscope," Aug., 1898; [11] "Glasg. Med. Journ.," Jan., 1898; [12] "Med. Rec.," April 18, 1898.

ALBUMINURIA. (See "Bright's Disease.")

ALOPECIA AREATA. *T. Colcott Fox, M.B.*

In last year's "Annual" we gave a *résumé* of Sabouraud's views on the parasitic nature of alopecia areata. These views have been sharply criticised, and, although his histological findings are accepted, it is held that the complete proof is as yet wanting.

On June 9th of this year, Sabouraud[1] made a remarkable reservation with regard to a certain type of alopecia areata in children. "Ophiasis," an alopecia peculiar to children, he says, makes its appearance almost invariably during early childhood, and is characterised by an alopecial spot situated either in the middle line of the occiput, or by two lateral and symmetrical patches. It spreads along the edges of the hairy scalp, which it surrounds with a bald border

some two or three fingers in breadth. It may occasionally commence at the forehead or the temples. The disease spreads irregularly, leaving isolated patches of hair intact upon the surface of the bald places. Sometimes total baldness results, and the disease usually lasts eighteen months. Spontaneous recovery results at puberty in the vast majority of cases, but the disease sometimes returns in adult life, or the recovery may be incomplete with persistence of the original bold patch upon the occiput. The hairs along the edge of the diseased area are atrophied, and show a series of knobs and constrictions; they break at the level of a knob, and this fracture leaves the broken end of the hair in a brush-like form. No specific microbe has been discovered, and the symmetrical disposition of the patches points rather to a nervous origin. It is not contagious, and an hereditary tendency has been noticed in only a very few cases. The best treatment is by using revulsives and vesicating agents, but epilation of the hairs at the edges of the diseased patches is of no good. The complaint has nothing in common with the seborrhœic alopecia of Bateman, for this latter is never seen before puberty, is contagious, occurs in round patches indifferently situated, and is always accompanied by its proper microbe. The infantile form, however, was described long ago by Celsus in his usual masterly fashion, and, without doubt, the best name for it is the old one of "ophiasis."

At Lyons an animated discussion took place on the etiology. Horand[2] affirms that it is special to man, and that he cannot isolate a specific microbe. He has been unable to inoculate the disease in animals and man, and antiseptics as such are useless, whilst excitants are the useful curative agents. Pathologically, the alteration of the hair is a dystrophy, only explicable by a lesion of nutrition of nervous origin, and quite dissimilar from that seen in ringworm or favus.

Certain facts of experimental physiology lend support to the tropho-neurotic theory, viz., the experiments of Max Joseph and Mibelli, after sectioning the posterior branch of the second cervical nerve immediately below the ganglion; and Morat's observation of the fall of hair after section of the posterior medullary roots. Pelade cannot be due to degeneration of sensory or other nerves, but arises from a functional cessation of conductibility. Clinically, there are many striking cases on record of generalised pelade, due to profound emotional disturbance, and its association with sclerodermia, Graves's disease, epilepsy, and vitiligo, was noticed.

Aubert, on the other hand, whilst acknowledging that contagion is inconstant and capricious, cited cases of contagion, and brings forward Sabouraud's investigations in support of his view.

Surgeon-Major Annequin affirmed that pelade had become very frequent in the French army in the last twelve years. Something like two thousand to two thousand five hundred cases are treated annually in the infirmaries and military hospitals. Military surgeons, he says, are convinced of its contagiousness by the mode of origin and grouping of the cases. He instanced, amongst other epidemics, an outbreak of one hundred cases at Montpellier in 1886, in the 122e regiment of the line, propagated by the tondeuse; secondly, thirty-five cases in 1886 in the 142e line regiment at Lodève; thirdly, the outbreak in Paris in 1888 amongst the sapeurs-pompiers; fourthly, fifty cases in 1888 in the 51e line regiment at Beauvais; fifthly, seven cases in a barrack at Saint-Mihiel; sixthly, several cases amongst the men of the 9e Cuirassiers at Lyons.

Again it was pointed out that, according to Besnier, contagion from domestic animals was not rare. Hillariet's observation of six cases amongst railway-workers, probably caught from a cat which slept in the hats, is well known (the cat, however, was not examined).

TREATMENT.—We cull from Aubry's thesis the following course of treatment adopted by Balzer :—

(1,) Render the head generally antiseptic by applying several times daily **Yan Swieten's Liquor,** pure or diluted one-half. This proceeding is also useful for some time after the apparent cure of the case.

(2,) Every morning, after the application just mentioned, the head, and especially the denuded areas, are rubbed with the **Lotion Excitante de Saint Louis,** viz. :—

℞ Alcool camphré gm. 125 | Ammoniaque liquide gm. 5
Ess. de térébenthine gm. 25 |

And at night the following ointment is applied :—

℞ Bioxyde jaune d'hydrarg. gm. 2 | Huile de cade gm. 15
Fleur de soufre gm. 4 | Vaseline gm. 30

Or calomel, or yellow oxide ointment, or sulphur (1 in 10).

(3,) Nevertheless, experience proves that after a time medicaments may lose their effect, and others should be substituted—*e.g.*, the **Acetic Lotion of Besnier :—**

℞ Crystallised Acetic Acid gm. 1 | Sulphuric Ether gm. 30
Hydrate of Chloral gm. 4 |

Essence of **Winter-green,** iodised **Vaseline, Phenicated Oil** (to 50th), tincture of **Iodine, Traumaticin of Chrysarobin** (1 in 10).

Chauvel[3] communicated a note from Surgeon-Major Arragon on a new treatment of pelade by **Pulverisation of Ether,** followed by **Chloride of Ethyl** and **Oxide of Methyl,** contained in the tubes called *chloro-éthyleurs.*

Arragon claimed to have arrested the spread of pelade patches in four or five days, and the re-appearance of hair was noted in ten to fifteen days in a dozen cases. In every case the hair ceased falling at the periphery of a patch after six to eight pulverisations in recent cases, and after twenty séances in old ones. At Chauvel's request, Prof. Loison tried this treatment at Val-de-Grace, and reported that, in cases previously untreated the results were about the same as with acetic acid applications, whilst in old pelades both treatments often failed.

Two great objections to this method are the expense and the time taken up.

REFERENCES.—[1] "Soc. de derm. et de syph."; [2] "Lyon méd.," March 20, 1898, *et seq.*; [3] "Bull. de l'Acad. de méd. Paris," Feb. 8, 1898.

AMBLYOPIA (Toxic). (See "Vision, Disorders of.")

AMENORRHŒA. *William Murrell, M.D., F.R.C.P.*

Prof. Simpson,[1] in a clinical lecture on Amenorrhœa delivered at the Royal Infirmary, Edinburgh, pointed out that it was obvious that the reputation which preparations of **Iron** have in the treatment of amenorrhœa is due to the circumstance that in a great many of the patients there is a morbid condition of the blood, and that fluid must of itself be improved, which is done by the administration of iron in some of its forms. There are various mineral waters, he added, which have a special reputation for the cure of amenorrhœa, sometimes because they have the effect of lessening the pelvic congestions, more especially the uterine congestion, such as the warm saline baths of Ems, Carlsbad, and Kreuznach. Others are more influential because they contain iron in a readily assimilable form. Such are the spas of Schwalbach and Pyrmont. In some places a combination of springs may be found. At Harrogate, first the sulphur waters may be used to lessen the congestion, and afterwards the iron in the chalybeate spring would be of special value in improving the condition of the blood. These establishments are serviceable not only on account of the merit possessed by the waters, but from the fact that good hygienic conditions are present, and they are usually properly arranged for different classes of invalids.

In most cases the iron, when prescribed medicinally, has to be administered for some length of time, and the question to decide is, What preparation of iron will be the most useful—that is, what preparation will be most likely to be assimilated into the system and bring about the desired effect? We use almost all the preparations of iron,

the carbonate, the citrate, the tartrate, the muriate and the phosphate, and it is necessary to find out which of these is most beneficial to each particular patient. In recent times the preparation that has most favour is the Blaud preparation of iron. Perhaps iron introduced into the stomach with carbonate of potash is more easily assimilated, but the saccharine carbonate of iron in a powder is used with the same object. The point to note is that these preparations are given for at least six weeks to an amenorrhœic girl with pale mucous membranes. Where the iron of itself does not produce improvement in the blood, it sometimes brings about menstruation if it be given in combination with some other minerals—such as preparations of zinc or arsenic—as a rule arsenic and iron bring about the conditions favourable to menstruation. **Manganese** also is very valuable in the treatment of amenorrhœa. Sometimes the manganese may be combined with iron, or it may be given in the form of permanganate of potash, 2 grains in a pill three times a day. In many cases this will promote the menstrual flow. There are several vegetable preparations also which have some degree of reputation, as so called emmenagogues. Some of them produce their effect by promoting the action of the bowels. In the management of these patients it is important to keep in view that many of them are the subjects of constipation, and it is necessary to see to the regular evacuation of the bowels. Hence aloes and iron pill is a very favourite preparation for these cases. Others recommend an aloes injection to promote pelvic congestion, and bring about the flow from the uterus. Myrrh has also been used, and rue; these are ingredients in Griffith's mixture; or guaiacum, ammoniated tincture ½ drachm to 1 drachm, three times a day, especially in patients with a rheumatic tendency. French physicians use apiol (oil of parsley), which can be given in 8 to 15 drop doses two or three times a day at the date when menstruation is due. Recently Murrell and Fothergill have indicated that some plants of the Senecio tribe have a value in promoting menstruation, probably on account of their influence on the nervous system.

Besides employing measures for improving the patient's strength, and giving drugs which promote the menstrual flow, the patient may be instructed to apply hot fomentations to the pelvis, and to use a warm footbath. This is helpful in patients who require some degree of pelvic stimulus. The bath should be used in anticipation of the period, and for two or three nights in succession. Indeed, one may go further and have recourse to warm injections into the vagina so as to promote the flow of blood. But if the injections be too hot, the effect of this may be to produce anæmia. Even some stimulant may

be employed in this way into the vaginal cavity, such as a teaspoonful of ammonia in a tumblerful of water or warm milk.

The uterus itself may be stimulated by the introduction of a sound at the period when menstruation is due, if other measures fail. The uterus may be even further stimulated. Thus, in cases where the uterus is undersized, we can not only introduce a temporary sound to irritate the uterus for the moment, but we can leave in a stem pessary made of zinc and copper. The author has seen several cases of notable superinvolution stimulated in this way, and redevelopment brought about. In some cases where there was imperfect congenital development the uterus has been increased in size and normal menstruation has resulted. The electric current has sometimes been found serviceable in just such cases for the stimulation of the uterus in order to bring about the menstrual flow. In this connection the current is to be employed in the inverse condition in which it is used for menorrhagia; that is to say, the negative pole will here be introduced into the cavity of the uterus, and the positive pole will be applied in the form of a broad plate over the abdomen, and in that way in certain cases the uterus has been restored to its functional activity. (See also "Menstruation.")

REFERENCE.—[1] "Practitioner," Aug., 1898.

ANÆMIA (Pernicious). *Græme M. Hammond, M.D., New York.*

Nonne[1] reports the pathological changes in the cords of two cases of this disease. In both cases the lesions were nearly identical. Microscopic examinations showed small foci of acute or subacute nerve degeneration scattered through the white substance from the upper lumbar region to the medulla. All stages of degeneration were observed, from a simple puffed-up appearance of the myeline sheath and swelling of the axis cylinder, to segmentation, breaking up, and disappearance of the nerve fibres with compensatory hypertrophy of the neuroglia. Changes in the vessels, hæmorrhages, cellular infiltration and extravasation of leucocytes were entirely wanting, and the gray matter throughout, with the nerve roots, was absolutely normal.

On the other hand, in a case reported by Teichmüller,[2] small hæmorrhages were found in the quadrigeminæ and striatæ. Microscopic examination showed similar lesions in both the white and gray columns, with degeneration of the anterior and lateral columns. The author combats the idea that the changes in the cord represent a combined system of disease, and regards the lesions of the gray matter as of chief importance.

Clarke[3] also reports two cases. In one there was intense degener-

ation of the entire posterior columns with some involvement of the lateral columns of one side in the lower dorsal and upper lumbar regions. The direct cerebellar tract remained intact. In the other case the degeneration of the white matter was restricted to small symmetrical patches just external to the gray matter between the anterior and posterior gray horns.

In the gray matter there were many hæmorrhages, chiefly situated near the central canal and base of the anterior horns. There were also small areas in which the gray matter was granular, partly disintegrated, or sclerosed. Certain of the nerve cells of the anterior horn were swollen, opaque and homogeneous, and their nuclei were obscured; others were highly granular and pigmented, and a few appeared small and shrunken. The walls of the small vessels were thickened, and many showed hyaline changes. The central canal was blocked.

Burtiandle[4] does not believe in a direct relation between the anæmia and the cord lesions. He thinks the most likely explanation is the presence of some toxic agent capable of producing both conditions simultaneously.

The writer agrees with this theory fully. The morbid changes observed in the cases under consideration are by no means uniform, but on the contrary are widely diverse. On the other hand, all the lesions, whether in the white or gray matter, in the cells or blood-vessels, were identical with those observed in toxic degenerations of the cerebro-spinal system.

REFERENCES.—[1] "Journ. Nerv. and Ment. Dis.," Feb., 1898; [2] Ibid; [3] Ibid; [4] Ibid.

ANÆSTHESIA. (See also "Anæsthetics," p. 12.)

H. Bellamy Gardner, M.R.C.S., Eng.

In passing under review the work which has lately been accomplished in this branch of practice, the present relative position of the three main agents used for the induction of anæsthesia should in the first place be clearly defined.

Nitrous oxide gas, in point of safety to the patient, stands *facile princeps*, the mortality attendant upon its use being almost a negligeable quantity when compared with that which occurs under the influence of its colleagues, ether and chloroform.

By a careful survey of the available statistics, ether is found to produce a death-rate of 1 fatality in every 15,000 administrations; but it must be borne in mind that this anæsthetic and chloroform are given to patients suffering from every variety of disease, whilst nitrous oxide is only inhaled in the majority of instances by com-

paratively healthy persons. The mortality from chloroform administrations during recent years stands at the high figure of 1 death in every 2,200 inhalations. This mortality does not materially differ from that which has obtained since the early days of anæsthesia; but of late years the total number of deaths from chloroform has been on the increase (amounting to 74 reported fatal cases in 1897 [1]), and though we must recognise the fact of a large annual addition to the total number of surgical operations, which keeps pace with advance in all branches of the art of healing, there is no longer any doubt that for routine work the number of cases in which nitrous oxide gas or ether ought to be used instead of chloroform, on account of their relatively greater safety, should be enormously increased. In the hands of a man who has produced surgical anæsthesia with help and supervision from a competent teacher 20 or 30 times, a patient is absolutely safer than in those of an unpractised person who cannot recognise the signs of respiratory obstruction or of over-dosage, and if he could, would be unable properly and thoroughly to rectify the former or apply effectual treatment in the latter case; yet in some parts of the United Kingdom the administration of chloroform, the most lethal anæsthetic, is entrusted to quite unpractised assistants. Any question as to the efficacy and value of the different methods of teaching how to give chloroform is beside the mark, while uninstructed and inexperienced administration is so frequently the cause of disaster.

The use of ether can, with a little attention to detail, be learned with a very moderate amount of practice, and it is obvious that no one should be allowed to pass a qualifying examination in these days without producing evidence of having administered at the *least* 20 surgical anæsthetics under qualified supervision. We shall no doubt, ere long, perceive the necessity of enforcing such a regulation, but it is to be hoped that this will happen before it is forced upon us by an enlightened public, who are so frequently called upon by coroners, after a fatality, to say that the anæsthetic has been skilfully administered.

Nitrous Oxide Gas.—Several important developments have taken place recently in the method of applying this anæsthetic.

The advantage of Dr. Hewitt's introduction nine years ago of an apparatus for mixing regulated percentages of oxygen with this gas in dental operations is daily receiving greater recognition, because it commands a more tranquil anæsthesia, 10 to 15 seconds longer than that of gas alone, and one which is free from symptoms of asphyxia. The present writer published an account in the "Lancet"

for June 12th, 1897, of several cases in which he had used a continuous administration of gas and oxygen for periods of 5 to 15 minutes during surgical operations, which he believes to be the first record of its application for that purpose. Since then Mr. H. Paterson has described his use of the mixture for surgical patients at St. Bartholomew's Hospital, in one instance maintaining the narcosis for an hour.

The objects gained by using this anæsthetic instead of ether or chloroform in selected cases are mainly that: (1,) Recovery is complete within two or three minutes after removal of the face-piece, the patient being almost always able to sit up and converse, or even to walk away immediately afterwards if desired; (2,) Subsequent sickness, or headache, is very rare.

Its disadvantages are that it is expensive both in cost of gas and apparatus, and that it requires considerable skill and unremitting attention to the breathing and colour throughout the inhalation.

At a meeting of the Society of Anæsthetists on March 17th, 1898,[2] Mr. Harvey Hilliard described a method of prolonging nitrous oxide anæsthesia in dental practice by means of an additional gas tube leading from the bottles to a catheter, which is passed through one of the patient's nostrils (*Fig.* 13). The administration is conducted in the usual way with stopcock and face-piece until the patient has lost consciousness, then taking the precaution that the ordinary gas bag is full, and choosing the end of an inspiration the face-piece is removed; the nasal tube (*A*) is rapidly passed (this can be done during a single expiration), the face-piece is re-applied, and the pedal stopcock is turned so that the gas now flows only through the nasal tube. At this stage the inhalation is continued by both nasal tube and face-piece up to full anæsthesia. The face-piece is now finally removed, the operation is begun, and narcosis is maintained by the nasal tube alone. To prevent the return of consciousness, the netted bag (*B*) must be kept fully distended, the gas being supplied at considerable pressure. It is claimed that 10 or 12 teeth can easily be extracted during the available anæsthesia. Mr. Alfred Coleman also explained the application of a nose-piece connected to the gas-bag with which he was in the habit of prolonging the narcosis for from 2 to 4 minutes after the induction had been carried out in the ordinary manner, and Mr. Stephen Coxon stated that for several years he had succeeded in procuring the same result by means of a metal tube conveying gas into the open mouth during multiple dental extractions.

These methods are receiving careful trial in London, and I can

certainly say from my own experiments and from witnessing those of others that a considerable prolongation of anæsthesia is attainable with them even in comparatively unaccustomed hands; but the disadvantage of having attention directed towards the apparatus instead of being able, adequately, to assist the operator by steadying

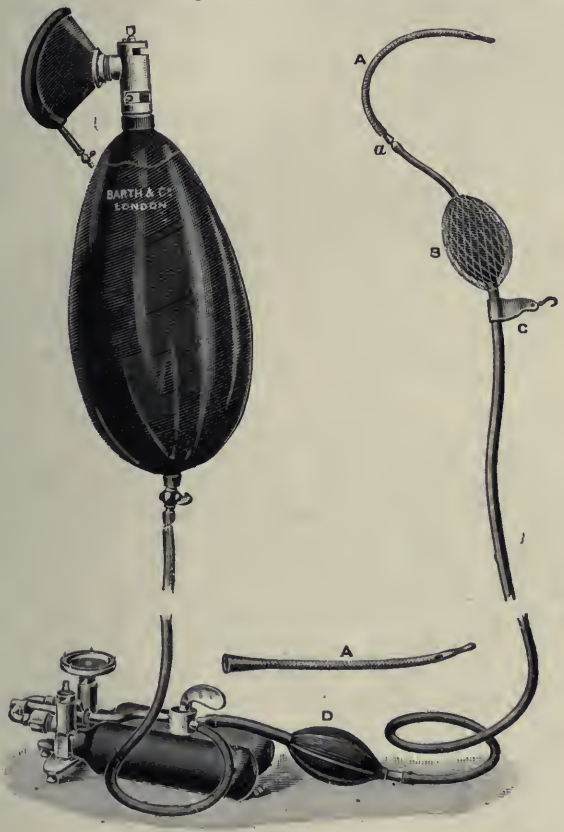


Fig. 13.—Anæsthetic Inhaler.

the head, sponging the gums and properly supporting the lower jaw during extractions largely counterbalances the advantage gained to the patient in avoiding a second inhalation of gas and oxygen given by the ordinary method.

Ether.—A valuable contribution to the literature of anæsthetics was made by Mr. George Rowell in his article on "The Anæsthetisation of Children,"[3] in which, from an extensive experience at Guy's Hospital, he was led to regard the A.C.E. mixture dropped upon Skinner's mask, followed by ½ to 2 drachms of the same upon the sponge of a Rendle's inhaler, and from 1 to 3 drachms of ether, then substituted for the first anæsthetic, to be the safest and best method "for routine use in children of all ages by those whose experience is not large."

Mr. Rowell's observation of a very delicate respiratory reflex which is elicited on presenting a strong ether vapour to the narcotised patient, forms by far the most reliable test of a proper degree of anæsthesia in a child at any given moment. By this device a little swallowing or a slight cough is produced if the sleep be not sufficiently profound, whilst the complete absence of any response shows that the little patient is surgically anæsthetised.

An important series of three Lectures delivered by Dr. F. W. Hewitt at the London Hospital, containing remarks on 6,657 administrations of anæsthetics in that institution during the year 1897, was published in the "Lancet" for February 19th, March 5th, and 19th, 1898. In connection with ether, a patient who ceased breathing with some accompanying cyanosis just as the stage of surgical anæsthesia was being reached, was treated by the house-surgeon by venesection and withdrawal of 10 ounces of blood with the result that respiration immediately recommenced; a second instance of the same difficulty was treated by artificial respiration with success. Remarking upon these Dr. Hewitt says, "It is very common, just before anæsthesia is established, for the breathing to become temporarily suspended. This is usually due, as an inspection of the neck will prove, to the anæsthetic vapour, or the mucus which it produces, setting up acts of swallowing which are more tardily performed than when consciousness is intact. During normal deglutition the glottis closes momentarily; but during the passage into profound anæsthesia the act of deglutition is liable to be spread out, so to speak, over a considerable time, during which no air enters or leaves the chest. In the vast majority of cases this impaired breathing, which comes on just before stertor, passes off spontaneously or, if it does not do so, it may be made to pass off by removing the inhaler, rubbing the lips briskly with a towel, and pushing the lower jaw forwards."

In reference to another case, a patient suffering from mitral obstruction and aortic regurgitation, who exhibited dusky pallor with rapid

and irregular pulse after a short inhalation of ether, Dr. Hewitt says, "Limitation of oxygen, which is necessarily incidental to the administration of ether by a Clover's inhaler, throws extra work upon the right side of the heart even in healthy persons, but in such subjects the extra work can easily be accomplished and no signs of cardiac embarrassment will arise. But in patients with mitral regurgitation or obstruction, 'close' methods of etherisation must be avoided; otherwise a dangerous strain may be thrown upon the right cavities of the heart. The best anæsthetic for such cases is the A. C. E. mixture; or if for any special reason ether seems preferable, it should be given by means of a felt cone or Rendle's mask, in order to avoid all undesirable exclusion of air."

Another patient, who was very pale and emaciated, underwent an operation for resection of the intestine lasting forty-five minutes; he exhibited considerable pallor and feebleness of pulse during the operation, although ether was being given from a Clover's inhaler. An injection of brandy was given by the bowel, and his condition gradually improved. Dr. Hewitt recommends this restorative, with injections of strychnia, and the intravenous introduction of saline fluids in cases which are associated with signs of surgical shock.

With regard to the comparison of after-effects produced by ether and chloroform, Dr. Hewitt states that out of 275 carefully-recorded cases, "Whilst 36 per cent. of the ether cases had no after-effects, 42 per cent. of the others were similarly fortunate; whereas, whilst the frequency of severe after-effects in the ether cases is represented by 7·2 per cent.; this frequency comes out at 8·5 per cent. in the others. In other words, patients are more likely to suffer from slight after-effects when ether has been used, but the chances of protracted vomiting are greater when chloroform has been administered." He also adds, "If nausea, retching, or vomiting be present, the first thing to do is to give at frequent intervals two or three ounces of very hot water to drink. The taste of ether is best overcome by moistening the lips with lemon-juice. If there appears to be a neurotic element present, enemata of 20 grains of bromide of potassium in 2 ounces of water will often answer well. I have found the inhalation of vinegar from a towel very useful in arresting vomiting, and I may say the same of the application of a mustard leaf to the epigastrium."

At a meeting of the Society of Anæsthetists, on April 21st, 1898, Mr. Horace Pechell recommended a plan of charging an Ormsby's inhaler with ether, by which he claimed that a gradually increasing strength of vapour from pure air to the most overpowering dose

could be procured. "To charge the Ormsby," he says,[4] "I remove the sponge and valve-cap and hold the inhaler with the bag dependent; I then pour 2 ounces of ether into the bag and replace the sponge. I do not allow the sponge to touch the ether at all, its sole function at first is to act as a porous diaphragm and divert the current of air from the bag.

"On applying the inhaler to the patient's face lightly, most of his breath goes and comes through the valve, and he gets scarcely any ether at all. I now accurately fit the face-piece and replace the valve-cap so that its slits do not coincide and both admit air. The bag is now coming into action, and the patient gets more ether vapour. I then make the valve slits coincide, and if the breathing is quite free and unconstrained, slowly close the valve. I now manipulate the bag so that the ether is distributed over as wide a surface as possible, and this, of course, increases the strength of the vapour. I now gently tilt the bag so as to wet the sponge with a little ether." The administration is then proceeded with in the ordinary way. Later on he says, "I feel that with all its faults ether is our best and safest anæsthetic; anything therefore that will simplify its administration and induce the general practitioner to give it a fair trial will be of service in reducing the anæsthetic death-rate."

The present writer has tried the method in a number of cases, and would thoroughly recommend its adoption, both for surgery and dental cases, in those parts of the country where there is difficulty in obtaining nitrous oxide gas with which to commence the administration of ether.

Chloroform.—Dr. Waller's now well-known experiments upon living nerve-tissue with various gases were extended and amplified by him, as regards the effect of the anæsthetic vapours, at a meeting of the Society of Anæsthetists, on Feb. 17th, 1898.[5] He came to the conclusion that "Taking 30,000 c.c. as the volume of fluid in a patient's body, and taking Dr. Snow's figures of 300 c.c. and 600 c.c. as the anæsthetic and lethal doses of chloroform vapour respectively, the percentages of vapour inhaled, between which the patient should be kept, come out as being between 1 per cent. and 2 per cent."

Later on Dr. Waller said, "What he was pleading for on that occasion was for quantitative administration upon the lines laid down by Snow forty years ago."

In commenting upon this communication, Dr. Dudley Buxton pointed out that "It was comparatively easy to give a known percentage and influence a nerve, but when they were dealing with individuals of different weights and different vital powers, powers

they were not able to estimate, persons whose circulations as well as their respirations varied from the zenith to the nadir, the problem presented to them was far more complicated."

There can be little doubt that Dr. Waller's researches point in the right direction for clinical work; but the practical anæsthetist has to face difficulties and circumstances which render the use of such rigidly limited means inapplicable and ineffectual in certain types of patients, and for operations upon certain sensitive organs of the body.

Dr. Alexander Wilson[6] delivered a lecture at an earlier meeting of the same Society, on "Resuscitation in Emergencies under Anæsthetics," in which, after a careful review of all the resources at our disposal, he recommended artificial respiration as the most reliable treatment which might be supplemented in chloroform syncope by lung inflation, inversion of the patient, pressure upon the abdomen, and faradisation of the phrenic nerve if necessary. He doubted the efficacy, at any rate in extreme cases, of measures such as cold douching, which depend upon reflex action of the nervous system; subcutaneous injections seemed also of doubtful utility.

The present writer published an account of six cases with severely obstructed upper air-passages, in the "Lancet," June 11, 1898, which he had recently met with in practice. These required the administration of chloroform for surgical operations, and, with one exception, they maintained a satisfactory circulation under the anæsthetic. The exception was a patient in whom the right recurrent laryngeal nerve was accidentally divided during an operation on the thyroid gland, producing a *sudden* marked obstruction in the air-passage which had previously been patent. Cardiac irregularity supervened upon the acute partial asphyxia which resulted; but intubation of the larynx relieved both conditions, and the patient recovered without further difficulty. The other cases, in whom a gradually increasing dyspnœa had been present for some weeks at the least—including two cases of epithelioma of the larynx, a case with double abductor paralysis of the vocal cords, one with multiple papillomata in the larynx, and another with tuberculous abscess and thickening of the right thyroid cartilage—displayed such ample compensatory thoracic movements that the circulation was considerably aided, especially on the venous side. The writer was led to the conclusion also from having frequently witnessed "operations exposing the internal jugular vein at the root of the neck, when it could be seen that this vessel partly flattens at each cardiac diastole, but completely collapses during deep inspiration," that if deep breathing can be maintained under chloroform, the anæsthetist to effect this even sometimes artificially producing slight

stertor by pushing the lower jaw backwards, the blood-pressure is also maintained and the syncopal pallor usually accompanying the various forms of shallow breathing during narcosis would be avoided.

REFERENCES.—[1] "Chloroform; its Absolutely Safe Administration," a pamphlet by Dr. Robert Bell, 1898; [2] "Lancet," May 7, 1898, p. 1244; [3] "Ibid., May 19, 1897; [4] "Transactions of the Society of Anæsthetists," vol. i, p. 153; [5] "Ibid., vol. i, p. 88; [6] "Clinical Journ.," Feb. 16, 1898.

Prof. R. Saundby, M.D., LL.D., F.R.C.P.

Many years ago, when operating upon a case of vesico-vaginal fistula, Mr. Lawson Tait observed that as the ether was pushed, the secretion of urine, by the trickling of which he was able to make out the position of the aperture, ceased, and he was obliged to change the anæsthetic to chloroform in order to complete the operation. He sent a note of the circumstance to the medical press, and pointed out that it indicated that ether suppressed the functions of the kidneys, and that therefore it is a dangerous anæsthetic in cases of kidney disease.

In a recent paper, Drs. Thomas and Coleman Kemp[1] have demonstrated the same fact by means of experiments upon animals with Roy's oncometer. They found that ether caused marked contraction of the kidney, diminution and, finally, suppression of urine with albuminuria, while at the same time the general circulation was unaffected. On the other hand, chloroform produced no effect upon the kidney until the general circulation was markedly depressed, and albuminuria only appeared after prolonged narcosis, and then in small amount. The A.C.E. mixture acted like chloroform. Nitrous oxide produced a transient effect upon the kidney corresponding to its action upon the general circulation, and therefore indicating no specific effect upon the kidneys.

The authors conclude that ether is a dangerous anæsthetic when renal disease is present, and particularly where there is a tendency to pulmonary œdema.

REFERENCE.—[1] "New York Med. Rec.," Sept. 3, 1898.

ANEURYSM. *Priestley Leech, M.D., F.R.C.S.*

Lancereaux and Paulesco[1] have treated aneurysm by the subcutaneous injection of gelatinous solutions. M. Dastre in 1895 found that the injection of **Gelatin** into the veins of a dog made the blood more coagulable. The treatment was applied in the case of an aortic aneurysm which had eroded the cartilages of the second, third and fourth ribs of the right side, and was increasing in size. A solution of gelatin of 1 in 100 of a solution of ·1 per cent. of sodium chloride

was prepared, and 50 c.c. at 37° C. were injected in the subcutaneous tissue of the left groin. A little redness appeared at the site of injection, and the patient's temperature went up to 38°C. Some improvement followed, but the old state of things appeared. A fresh injection of 150 grammes was given ; good results again followed, and twelve other injections were given at intervals of two to five days. The tumour diminished in volume, became much firmer, and the pains disappeared.

Dr. Stewart[2] gives the *post-mortem* report on a case of very large innominate aneurysm, in which forty-one months before, the sac had been solidified by electrolysis through ten feet of coiled gold wire. The case was a most unpropitious one for any kind of treatment. The patient was a spirit drinker, a syphilitic, had pronounced aortic and mitral disease with extensive cardiac enlargement, generalised endarteritis and also chronic nephritis. The patient died from cerebral thrombosis three and a half years after operation. At the *post-mortem* the sac, the size of a fœtal head at term, was completely consolidated with organised coagula, in which lay the coils of wire.

As regards the technique, silver or gold wire, previously coiled, and so drawn that it may be easily passed through a thoroughly insulated needle of somewhat larger calibre than the wire, is used. The amount of wire used depends upon the calibre of the sac ; for a globular sac of approximately three inches in diameter, three to five feet in length is sufficient ; for a sac of four to five inches, eight to ten feet. The anode, or positive pole, should invariably be the active electrode, and this is connected with the wire and the negative rheophore ; a large clay plate or an absorbent cotton pad of equal dimensions, made after the manner of Massey, is placed upon the abdomen or back. The current is brought slowly into circuit, and its strength is noted by an accurate milliampèremeter. The increase is gradual for a few moments, until the maximum strength supposed to be required is reached. It is maintained at this until the approach of the end of the sitting, and then gradually diminished to zero, after which the wire is separated from the battery, the needle carefully withdrawn by rotation and counter-pressure, and the released external portion of the wire gently pulled upon and cut close to the skin, the cut end being then pushed beneath the surface. The strength of the current must be high, from 40 to 60 milliampères, and the sitting long, from three quarters of an hour to an hour and a half.

Moynihan[3] relates the case of an aneurysm of the third portion of the sub-clavian artery treated by excision of the sac. Unfortunately the patient died fifty-nine days after operation from rupture of a second aneurysm about one inch internal to the ligature. For the second

aneurysm the innominate artery was ligatured, but the patient succumbed about an hour after this operation to shock and hæmorrhage.

The following procedure was followed in removing the aneurysm. A curved incision with the convexity downwards was made, commencing over the trapezius muscle internal to and above the acromio-clavicular joint, and ending above and internal to the sterno-clavicular joint, its lowest point being about an inch and a half below the centre of the clavicle. This flap was reflected upwards, and the sub-clavian triangle was fully exposed. The outer half of the clavicular attachment of the sterno-mastoid muscle was divided about three-fourths of an inch above the clavicle, leaving sufficient muscle attached to the bone to enable the divided fibres to be readily stitched after completion of the operation. After clearing the anterior surface of the clavicle four holes were drilled through it; two about half an inch apart, at a distance of one and a half inches from the sterno-clavicular joint, and two the same distance apart, at the junction of the middle and outer thirds of the bone. Between the inner two and the outer two the bone was sawn through with Hey's saw, and the middle portion, attached by the sub-clavius muscle, liberated. A loop of stout silk was then passed round the clavicle by means of a large curved Hagedorn needle; by means of this the middle portion of the clavicle was pulled well downwards and kept out of the field of operation. The aneurysmal sac was cleaned and exposed mainly by use of the fingers. Four strands of catgut were passed about a third of an inch on the inner side of the aneurysm, and tied tightly; a thin silk ligature was then passed between the catgut ligature and the sac, and tied as close to the sac as possible. The artery was cut between the two ligatures, and the sac dissected out, and the first part of the axillary was then tied with catgut. The innominate was tied on the fifty-ninth day in another way than the classical one. A curved incision is made with the convexity to the left, beginning about two and a half inches above the clavicle over the sterno-mastoid muscle, and terminating about two and a half inches below the clavicle at the junction of its inner and middle thirds. The incision extends to the left sterno-clavicular articulation. The flap so marked out is turned outwards exposing the sterno-mastoid, the inner end of the clavicle, the sterno-clavicular articulation, and a portion of the upper end of the sternum. Two holes half an inch apart are then drilled, the internal one being about an inch from the inner extremity of the bone. Between these two holes the bone is divided. The sternum is then sawn or chiselled horizontally from the upper end of the cartilage of the first rib to the middle of the bone or a little beyond, and from the end of this

incision a second is carried upwards to the upper border of the sternum, about its middle. The posterior surface of the sternum is cleared by passing the finger behind it. The inner end of the clavicle and the piece of the sternum are then turned upwards, and access is readily given to the innominate artery just before its bifurcation. The bones can then be replaced, the clavicle being united with wire or silkworm gut, and the sternum with a few ligatures, passed through its periosteal covering.

REFERENCES.—[1] "Gaz. des hôp.," No. 71, 1897; [2] "Brit. Med. Journ.," Aug. 14, 1897; for history of case see "Amer. Journ. of Med. Sci.," Aug. 1896; [3] "Annals of Surg.," July, 1898.

ANOSMIA. *R. Lake, F.R.C.S.*

Loss of Smell.—This may arise either as a result of recurrent catarrh, obstruction of the middle meatus, syphilis, or accident, as blows on the head or concussion. Hysteria also accounts for some cases.

Olfactory and gustatory disturbances in tabes dorsalis are mentioned by Klippel,[1] as being of fairly common occurrence. There may be kakosmia or pervertion of smell; hyperæsthesia or hyperosmia; or reflex disturbances. These are due to alteration in the special nerves (nerve roots); lesions of the trigeminus; or primary alteration of the muscular sense.

TREATMENT.—Bibard[2] has obtained good results from this treatment: Nasal irrigation every morning, and the use of a powder consisting of **Sulphate of Quinine** (10 cg.), **Subnitrate of Bismuth** (10 gm.), combined with the use of **Electricity.** In cases of hysterical anosmia the **Faradic Current** to the root of the nose, strong enough to produce pain, gives excellent results.

REFERENCES.—[1] "Arch. de Neurol.," April, 1897; [2] "Med. Times and Hosp. Gaz.," Sep. 18, 1897.

ANTHRAX.

Synopsis.—(Vol. 1898, p. 107.) Application of **Thermo-Cautery** to site of inoculation, together with injections of **Iodine** 10%, or pure iodine in extreme cases; internally, **Oxygenated Water** and **Iodised Water.** De-emetised **Ipecacuanha** internally and externally. **Excision** should be adopted whenever practicable; if impossible, incise and apply **Pure Carbolic** or strong **Iodine.**

ANTISEPTIC TREATMENT. *Priestley Leech, M.D., F.R.C.S.*

Disinfection of the Field of Operation.—Drs. Landerer and Krämer[1] say that Lauenstein, in spite of careful and detailed attempts at disinfection, only found the skin sterile in about 40 per cent. of the cases. The present methods are simply superficial in their action, and as Garrè and others have shown, the micro-organisms are found

deep in the glands, and therefore a disinfectant which can act in the form of a gas is needed. Since August, 1897, the authors have tried a 1 per cent. solution of formalin. This method Krämer tested bacteriologically in thirty cases; growth was present in only four cases, and in three of these single colonies only were present. Clinically, in only three cases out of sixty was there any departure from primary healing. After a bath and rubbing with soap and hot water, the part to be operated upon is covered with a compress of 1 per cent. formalin solution, over which is placed some waterproof material. This compress may be left on for a period varying from six to thirty-six hours. If the formalin is left on for two days a hardening of the skin is produced, and healing by primary intention seems to be disturbed. Just before the operation the usual scrubbing with soap, ether, and sublimate solution, is done.

Bruce Clarke[2] draws attention to two points which are often overlooked by surgeons, viz., the fact that roughened hands are far more difficult to make aseptic than smooth ones, and that bacteria are often found in close proximity to a wound which has healed by first intention, and Clarke thinks this is more frequently the case where the cleansing processes have been sufficient to induce vesication. The moral is, don't use too powerful disinfecting agents, either for the surgeon's fingers or for the skin of the region to be operated on.

Klemm[3] says that the cushions hitherto in use, even the indiarubber air cushions, are not suitable for being sterilised by heat. He has used bags made of strong linen, and filled with wood wool. The cushions can be sterilised *en masse*, or the linen bag can be sterilised by steam and then filled with sterilised wood wool.

Use of Gloves.—Keen[4] remarks that Halsted, of the Johns Hopkins Hospital, was the first to use rubber gloves, in 1889; from that time they have continued to use gloves in that hospital within certain limits. Halsted says, "I wear gloves if, for example, I am removing a foreign body from the knee-joint, or suturing a broken patella, or exploring the abdomen, or doing a simple hernia operation, or any simple operation which does not require a delicate touch or dexterity, and which if suppuration supervened might be followed by unpleasant results." Keen found many objections to the use of rubber gloves; he has, however, tried thin cotton gloves, as recommended by Mikulicz, and liked them very much.

McBurney[5] says that lately the conviction has been gaining ground that the important agents of wound infections are to be sought for among the palpable objects which come into contact with the wound.

There is no difficulty to-day in having absolutely sterile clothing, water, sponges, towels, ligatures, sutures, instruments, and other utensils, and McBurney's conclusion is that the real source of infection of a wound deliberately made by a careful surgeon, who uses perfect materials and handles them perfectly, is to be sought in the skin of the patient or in the hands of those directly concerned in the operation.

Judging by clinical experience, it is very probable that the patient's skin is seldom an active factor in determining the infection of operation wounds. In fact, the hand of the surgeon or his assistants is left nearly alone to prove its innocence. In April of last year he determined for these reasons to use rubber gloves systematically. At first only he and his first assistant used gloves; the results were remarkably perfect, but in the course of three months there were several imperfect wounds; since October he and all his assistants have worn rubber gloves at *every operation of every kind*. The result has been most gratifying. A large number of wounds have been immediately closed without other drainage than a small bit of thin rubber tissue, inserted at one or two angles; no antiseptic solutions have been used, and iodoform has been applied only in wounds infected before operation and in operations about the rectum; the only douche used has been sterilised salt solution of the strength of $\frac{6}{10}$ of 1 per cent. The hands have merely been washed in soap and water. During five months only five cases of even slight wound infection occurred. He has had no difficulty in manipulating instruments, etc., after a little practice. If a glove finger is torn it can be closed by putting over it an extra glove finger. The gloves are not expensive, and they last with daily operating from four to six weeks. The gloves are boiled in 1 per cent. soda solution. With "boiled hands," McBurney says he can obtain in his own work such uniformly perfect wound healing as he did not believe before was possible.

REFERENCES.—[1] "Centralbl. f. Chir.," p. 209, 1898; [2] "West Lond. Med. Journ.," Oct., 1897; [3] "Centralbl. f. Chir.," No. 44, 1897; [4] "Annals of Surg.," p. 224, Feb., 1898; [5] Ibid., p. 108, July, 1898.

APHONIA. *R. Lake, F.R.C.S.*

Hysterical Aphonia.—Middlemas Hunt[1] has entirely given up the use of electricity in the treatment of this complaint. He employs voice training and breathing exercises, and not only obtains good results, but lasting ones. The treatment is not commenced until the laryngoscope has proved the case to be one of this disease. The mirror is kept *in situ*, and the patient phonates "e," and then the

remaining vowels are sung. The exercise is then continued, the tongue being free. To obtain the consonants, the numerals one to ten are *sung*; finally, reading aloud. To this, respiratory exercises are added.

When the vocal cords do not approximate correctly, the mirror being in place, the patient inspires, imitating inspiratory stridor, expiring with a short cough. External manipulation of the larynx (massage) is of value, directing the attention to the part. The patient, after the voice is somewhat restored, should be placed under a teacher, and have the exercises with the piano.

The Voice in Singers.—The abdominal type of respiration in singers is held by Hellat[2] to be that most calculated to give good results. The definition he supplies is, that in inspiration the diaphragm takes part, and in expiration the abdominal muscles.

Loss of Voice and Hoarseness in Singers.—Krause[3] attributes most of the loss of voice in singers to improper use of the voice and overstrain. He notes the disadvantages of women's dress, especially of corsets. He warns singers against excess either of tobacco or alcohol.

The treatment of muscular paresis should be in part endo-laryngeal electrical stimulation. Diseases of the nasal cavities demand careful attention. Barth[3] and Krause both draw attention to the malign influence exercised by chlorosis. Barth, however, considers singing an adjunct in treatment of chlorosis. Heryng,[4] after operative treatment of nodules, produces a temporary aphonia by the use of nitrate of silver.

Botey[5] advises singers who suffer with hoarseness, a light purgative, a moderate diet with baked apples, and this throat spray :—

℞	Cocaine Hydrochlor.	1·	Aq. Dest.	100·
	Strych. Sulph.	·05		

M. Ft. spray.

with the following pastils :—

℞	Cocaine Hydrochlor.	·05	Sacch. Alb.	
	Tr. Aconit.	gtt. x	Marshmallow	āā q.s. for 80 pastils

And one hour before going on the stage the singer is to take 5, one millegramme, strychnine granules.

A case of reflex aphonia was found by Cronzillac[6] to be dependent on the irritation caused by a sessile tumour of the inferior turbinate. The removal of the growth by the galvano-cautery cured the aphonia.

REFERENCES.—[1] "Treatment," Oct., 14, 1897 ; [2] "Journ. Laryngol.," Dec., 1897 ; [3] Ibid., Dec., 1897 ; [4] Ibid. ; [5] "Med. Rec.," June, 1897 ; [6] "Ann. des mal. de l'oreille," Nov. 12, 1897.

APPENDICITIS. *Priestley Leech, M.D., F.R.C.S.*

The literature on this subject has not been very scanty, but there is not much change in treatment to record.

Dr. Vischer, of Philadelphia,[1] suggests a new incision for removal of the appendix. The incision commences at the outer edge of the external oblique, runs forward an inch above and parallel to the crest of the ilium, as far as or even beyond a point corresponding to the anterior superior iliac spine. After division of the skin and aponeurosis, the external oblique, which is well developed at this point with its fibres running vertically, is separated, and then the fibres of the internal oblique and transversalis are separated. The transversalis fascia and peritoneum are then divided in a vertical direction. The incision will be found to have opened the peritoneal cavity at its lowermost plane, and near to the attachment of the cæcum. A finger now being introduced invariably comes into contact with the caput coli, which can be readily drawn into the wound, and thereby facilitate the search for the appendix. The advantages claimed for this incision are: (1,) From the position of the wound it is almost impossible for hernia to occur, even when it is allowed to heal by granulation; (2,) It offers a dependent point favourable for drainage; (3,) The cæcum and appendix are easily found. The greatest disadvantage is that in the corpulent the depth of the wound may make manipulation difficult.

Grinda[2] suggests a similar incision where the local signs point to a retro-cæcal collection of pus.

Czerny and Heddaeus[3] give notes of several cases of appendicitis treated during the last five or six years, in Czerny's clinique. The cases consist of twenty-eight of chronic appendicitis, thirteen of subacute perityphlitic abscess formation, and fifteen cases of acute perforation. Notes of the cases are given.

They divide their material clinically into the following classes:—

(1,) Acute perforation of the appendix.

(2,) Sub-acute perityphlitic abscess: (*a*,) caused by pus organisms of different kinds; (*b*,) caused by actinomycosis.

(3,) Appendicitis simplex chronica: (*a*,) tuberculous; (*b*,) ulcerating and obliterating forms; (*c*,) catarrhal inflammation.

The conclusions they come to are as follows:—

(1,) The first acute attack of appendicitis belongs to the domain of the physician. Treatment, quieting of the intestines by means of opium, ice, etc. This attack can either: (*a*,) pass away without any further complication, or (*b*,) may sooner or later lead, with alarming symptoms of a general and local nature, to perforation with

abscess formation. This abscess may lead to general peritonitis or may remain circumscribed ; in either case surgical interference is necessary.

(2,) All chronic relapsing forms, whether purely catarrhal, ulcerative, perforating or partially obliterating, belong to the domain of the surgeon, because they form a constant danger to the existence of the patient.

In these cases operate in a free interval.

REFERENCES.—[1] "Annals of Surg." Nov. 1897 ; [2] "Méd. mod.," No. 71, 1897 ; [3] "Beiträge zur Klinischen Chir.," Band xxi, Heft 2.

ARTERIES (Suture of). *Priestley Leech, M.D., F.R.C.S.*

Lindner[1] reports a case where both the common femoral artery and vein were opened. The vein was resected and both ends tied; the arterial wound was closed by two rows of fine silk sutures. The patient, a feeble old man, made a good recovery. Simultaneous ligature of both artery and vein is far more likely to lead to gangrene than ligature of either vessel alone. It is not safe to apply a suture to a transverse wound involving more than one half of the circumference of the vessel; in these circumstances it would be better to resort to the practice advocated by Murphy, of resecting the injured portion of the artery and bringing the ends together, the proximal end being invaginated into the distal one, and fixing them by five sutures.

Lindner would transfix all the coats of the vessel, and would prefer fine silk to catgut.

REFERENCES.—[1] "Berl. Klinik.," April, 1898, quoted in Epit. "Brit. Med. Journ.," June 11, 1898.

ARTHRITIS (Tuberculous). *Priestley Leech, M.D., F.R.C.S.*

The tendency in the treatment of this affection is certainly tending to less active measures than were formerly employed, and there is a growing accumulation of evidence in favour of injection of some form of **Iodoform** emulsion, combined with rest and immobilisation.

Barling[1] says he has had several years' experience of the treatment by injection of iodoform emulsion ; he has seen no drawback to this form of treatment, and in many cases it has been of very great advantage. He has now discarded ether or olive oil, and uses a 10 per cent. emulsion of iodoform in glycerin, with the addition of a little water if the glycerin is very thick. He thinks that the non-solution of the iodoform in the glycerin is the reason why he has never seen any symptoms of iodoform poisoning in his cases. The emulsion is best freshly prepared, and latterly he has heated it for half an hour in a water bath. The syringe should be capable of holding not less than

6 drachms, and be supplied with coarse needles as the emulsion is rather thick ; one should be able to take the syringe to pieces, and all parts should be boiled before use. The amount to be injected varies ; for the knee-joint of a child of five or six years of age, two or three drachms may be introduced, and twice that amount in an adult.

It is not always necessary to inject into the joint cavity ; greater advantage is often obtained by injecting into the thickenings of the tendon sheaths around, as in the wrist joint or into the pulpy thickenings produced by the tuberculous infiltration penetrating the joint capsule, such as occurs in front of and behind the great trochanter in the hip joint. In these cases a smaller quantity of the emulsion is used. The immediate effect of injection into a joint cavity is to set up a good deal of effusion, the swelling increasing for about twenty four hours with rise of 2° to 4° in the temperature ; by the fourth day it generally falls to normal. If the injection is only into the tissues around the joint the local and general disturbances are much less marked. The injection may be repeated either at the same or more frequently an adjacent part ; he usually allows a fortnight to elapse before repeating it.

It is no remedy for tuberculous bones, such as are inaccessible to the emulsion. His results with iodoform are much better than what he obtained with zinc chloride. Rest and fixation are carried out by the writer thoroughly, and if the cases are not doing well he resorts to injections, still keeping the part at rest.

O. Brigel[2] gives the results of thirty nine cases of tuberculosis of the wrist joint treated in von Brun's clinic by iodoform injections. Twenty eight of these cases were treated in the out-patient department. Injections of 10 to 20 per cent of iodoform oil were used. In the in-patients the injections were repeated every four to eight days ; in the out-patients the interval varied between two and five weeks, the joint being kept as a rule at rest on a splint or in plaster. The average number of injections varied from three to seven.

In cases where there was fluid in the joint 10 to 30 c.cm. were injected after withdrawal of the fluid ; in the fungous form of tuberculosis 2 to 8 c.cm. were injected into the joint and diseased masses, under strict antiseptic precautions. Of the thirty-nine cases twenty-four were permanently cured ; seven died, four remained unhealed, and three were subsequently operated on. The functional results were good.

A very exhaustive article on the treatment of cold abcesses and tuberculous diseases of the joints has been written by A. Henle,[3] founded on material from Mikulicz's clinic. A tabulated list of three hun-

dred and thirty-three cases is given along with a copious bibliography. The cases are those treated in the Breslau clinic during the years 1890–1896. A 10 per cent. mixture of iodoform in glycerin was used in the cases treated by injection, and the mixture was not sterilised.

Henle's conclusions are as follows : (1,) The consistently carried out conservative treatment of joint tuberculosis (venous congestion, iodoform glycerin, orthopædic measures, etc., and also atypical operations) is, taking into consideration the number of cures, not inferior to operative treatment ; (2,) The functional results of conservative treatment are much better than those of operative treatment ; (3,) The mortality on the whole is less in the conservative method ; (4), In adults, where the patella is immovable, resection is to be preferred to conservative treatment.

Resection of Wrist Joint for Tuberculous Arthritis.—Dr. O. Wolff,[4] says Bardenheuer removes the the carpus *in toto*, avoiding the opening of the smaller joints and individual removal of bones ; where possible, the trapezium is left in order to secure mobility of the thumb. The three metacarpal bones, two, three and four, are cut to form a wedge whose apex is formed by the third metacarpal ; the bones of the forearm are cut into a V shape into which the metacarpal wedge fits The wound cavity is thus obliterated. An extensive bony opposition is secured and solidity insured by nailing the bones together, one nail being driven through the third metacarpal and radius, another through the fifth metacarpal and ulna ; the trapezium with the thumb being nailed to the outside of the radius, the surface of which has been previously freshened. Tendons having undergone resection from implication in the tuberculosis process are easily reunited by suture. A stiff bandage is applied and kept in place for five weeks. Ankylosis results, and is to be preferred, as experience has demonstrated that it is attended by fewer recurrences, greater power in the fingers, and impossibility of an undesirable flail joint.

REFERENCES.—[1]"Therap. Gaz.," Sep. 15, 1897, quoted from "Treatment" ; "Beitrage z. klin. Chir.," Band xx., Heft 1 ; [3] Ibid., Band xx., Heft ii and iii and supplement heft ; [4]"Annals of Surg.," see also the discussion at the Congress of Tuberculosis, in Paris, in Epit. "Brit. Med. Journ.," Aug. 20, 1898.

ASTHMA. *F. de Havilland Hall, M.D., F.R.C.P.*

No fresh light has been thrown upon the pathology of this troublesome affection during the past year, and no notable improvements in its treatment can be chronicled.

For the relief of the paroxysms the following prescriptions have been recommended :—

℞ Tinc. Lobeliæ Æthereæ ♏xv | Tinc. Chlorof. Comp. ♏v
Spts. Ætheris ♏xx | Aquæ Camphoræ ad ℥j

M. Sig.—To be taken when breathing is difficult.[1]

℞ Tincture of Opium ℥j | Sulphuric Ether ℥ij

Sig.—Give 50 drops every half hour until the patient is relieved.[2]

℞ Iodide of Ammonium ℥ij | Tincture Belladonna ♏60
Fl. Ext. Grind. Robusta ♏30 | Syr. Wild Cherry Bark ℥ij
Tincture Lobelia ♏60 | Distilled Water ad ℥vj

Sig.—A dessertspoonful to tablespoonful every three or four hours.[3]

Dr. S. Solis-Cohen[4] frequently prescribes the fluid extract of **Quebracho** in the treatment of asthma, whether of the bronchial or purely spasmodic variety. The dose is from ♏30 to fl.℥j, and may be repeated hourly or less frequently according to circumstances. When the stomach is irritable it should be given in a bland vehicle, or some liquid preparation of pepsin. It acts promptly, or not at all. Unless relief is experienced within forty-eight hours it should be discontinued. When useful it may be continued in combination with an antispasmodic, such as **Sodium Nitrite,** with a sedative like **Strontium Bromide,** or with an **Ammonium Salt** or other expectorant.

For nocturnal dyspnœa he recommends the following injection[5]:—

℞ Morphin. Sulph. gr. $\frac{1}{8}$-$\frac{1}{4}$ | Hyoscin. Hydrobrom. gr. $\frac{1}{200}$
Strychnin. Sulph. gr. $\frac{1}{60}$-$\frac{1}{40}$

M. Sig.—Give hypodermically at bedtime.

As a change from potassium iodide the sodium salt may be given[6]:—

℞ Sodium Iodide ää. grns. 75–180 | Syrup of Squill grs. 450
Tinct. Stramon. | Distilled Water grs. 2,750
Extract of Licorice gr. 60

M. Sig.—A tablespoonful three or four times a day.

Dr. Forbes Godfrey[7] gives an account of a case in which **Strychnine Arsenate** effected a cure in a case of asthma that had resisted every other remedy for fifteen years. The patient suffered from frequent attacks, that finally incapacitated him for work. Dr. Godfrey was led to the use of the remedy because a thorough examination of the patient's physical condition showed that all the organs were perfectly normal, but that the general condition was anæmic, his general muscular action sluggish, memory poor, and a feeling of general irritability was always present, thus indicating the need of a cerebro-spinal tonic. The strychnine arsenate was given in pills of $\frac{1}{30}$ grn., 1 after meals for three days, then 2, three times a day for three days, and so on until 4 pills were being taken three times a day, with

the caution, however, to stop their use should any stiffness of the jaws become noticed. The result was a complete cure.

One of the most recent suggestions for the treatment of asthma is that put forward by Revilliod[8] who has employed **Antidiphtheritic Serum.** He looks upon an asthmatic attack as probably an attempt to eliminate some poison by the respiratory system, and he points to the good effects of iodide of potassium, which acts in his opinion, by facilitating excretion through the respiratory tract. It is on account of a similar physiological effect that he was led to employ the serum. He reports a series of interesting cases in which he injected antidiphtheritic serum in ten cubic centimeter doses during an attack; there was almost immediate relief. The injections at first cause the attacks to be less severe, and then to occur at greater intervals. An injection was usually given whenever an attack threatened.

REFERENCES.—[1]"Med. Record," Aug. 15, 1896; [2]"Therap. Gaz.," Sept. 15, 1897; [3]"Medical Age," July 10, 1896; [4]"Phil. Polyclinic," Oct. 2, 1897; [5]"Med. Record," April 30, 1898; [6]"New York Med. Journ.," Sept. 23, 1897; [7]"Amer. Med. and Surg. Bull.," Nov. 25, 1897; [8]"Brit. Med. Journ.," Epit. Jan. 8, 1898.

BACTERIURIA. (See "Urine.")

BERI-BERI. *W. Gilman Thompson, M.D., New York.*

"Beri-beri as it occurs in temperate climates," is described by Conolly Norman,[1] with special reference to its prevalence in the Richmond Insane Asylum, Dublin. Œdema over the tibiæ was the first symptom observed, with partial anæsthesia. Cardiac irregularity and tachycardia were also prominent. Motor symptoms followed, such as paresis of the peronei and flexors of the foot, until all the leg muscles became involved. Various paræsthesiæ were also observed.

The first epidemic in this institution was observed in 1894, when one hundred and seventy-four cases developed within a year, one hundred and twenty-seven being males, forty-seven females. None but the insane were attacked; 14·3 per cent. of the cases proved fatal. In 1896 another epidemic of one hundred and fourteen cases followed among thirty-one male and seventy-six female insane patients, with seven (sane) nurses. In 1897 there were two hundred and forty-six cases. The total mortality for the three epidemics of five hundred and thirty-four cases was 8·23 per cent. The writer continues with an interesting discussion of the etiology, referring especially to diet and hygiene.

REFERENCE.—[1] "Brit. Med. Journ.," Sept. 24, 1898, p. 875.

BICYCLING FOR WOMEN. *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

The question when a woman may bicycle, and when she may not, is one often asked now-a-days. There is a further question, namely, when she *ought* to bicycle, for the wheel is now ranked among the therapeutic measures in gynæcology, as is somewhat neatly expressed by Ballantyne[1] in the aphorism: "It has displaced the horse, and in woman has, in a measure, replaced the uterus."

Fauquez[2] summarises the answers to the above three questions as follows:—

(1,) Bicycling may be *advised* in certain pathological conditions of the uterus and ovaries, thus: (*a*,) In uterine congestion; (*b*,) In amenorrhœa or suppression of menstruation connected with an arrest of development of the ovaries and of the uterus, with anæmia, chloro-anæmia, digestive troubles, neurasthenia, and chronic affections; with troubles resulting from physical or mental shock, cold, etc.; (*c*,) In dysmenorrhœa connected with nervous troubles; (*d*,) In congestive dysmenorrhœa due to any cause capable of provoking congestion in the uterus and the ovary, such as physical or mental shock; (*e*,) In deviation of the menses or supplementary menstruation; (*f*,) In fibrous tumours when the hæmorrhagic stage has passed.

(2,) Bicycle-riding may be *permitted* in cases of mechanical dysmenorrhœa due to an obstruction to the discharge of blood, either congenital or acquired, and in membranous dysmenorrhœa; in cases in which the uterus becomes displaced; in cases of chronic metritis connected with the arrest of involution of the uterus after confinement or abortion, if it is not painful and recovery has begun. In this case, however, the exercise must be taken in moderation; in cases of leucorrhœa in anæmic and chloro-anæmic persons, and in cases in which the general condition is weak.

(3,) Bicycle-riding must be *absolutely proscribed* as follows: (*a*,) In amenorrhœa connected with pulmonary phthisis, cancerous affections, diabetes, organic diseases of the heart, and diseases of the kidneys, such as albuminuria; (*b*,) In cases of metrorrhagia or excessive menstruation; (*c*,) In cases of inflammation of the uterus and its adnexa, acute metritis, chronic painful metritis, hæmorrhagic endometritis, purulent endometritis, leucorrhœa connected with an inflammatory condition of the intra-uterine mucous membrane, inflammation of the adnexa, salpingitis, oöphoritis, salpingo-oöphoritis, perimetritis, pelvic cellulitis, and pelvic abscesses; (*d*,) In cases of pelvic hæmatocele and of fibrous tumours during the hæmorrhagic stage; (*e*,) In cases of inflammation of the vulva or vagina before complete recovery.

Ballantyne considers the subject in a paper (*loc. cit.*), from which

many important practical points may be gathered. Among the general advantages which he attributes to bicycling for women are, a more rational fashion in dress and an increase in nervous stability and self-reliance. Of specific pathological conditions improved by cycling, several deserve mention. Constipation, for instance, and, in direct relation therewith, anæmia.

Ballantyne quotes several recent writers on the subject. Thus, Theilhaber considers that amenorrhœa from defective uterine development and nervous dysmenorrhœa in young girls and sterile women constitute positive indications for cycling. Uterine displacements in the non-gravid do not form a contra-indication, and he has seen improvement follow its use in *prolapsus uteri*, probably from a better tone in the muscles. In cases of endometritis cycling seemed to do neither harm nor good, but theoretically it was contra-indicated in the hæmorrhagic form. The same general testimony in favour of bicycling in cases of *moderate uterine displacements* and imperfect development was borne by sixteen out of eighteen female physicians who were interrogated on the subject by C. W. Townsend.

Prendergast and Nash anticipate that cycling by women will be followed by easier confinements and the birth of healthier children; but they think the risk of accidents is too great to make the exercise justifiable in pregnancy, although Nash notes three cases in which it was persisted in up to the sixth month of gestation with good results.

Finally, Gaches-Sarrante does not regard salpingitis or chronic salpingo-ovaritis as contra-indications to cycling, and considers it as better than Swedish massage in *chronic peri-uterine inflammation.*

Among the drawbacks of cycling, some alarmists have included the moral dangers which they aver may result from perineal and vulvar pressure. The cycle may without fear be acquitted of this charge. Perhaps, to quote Ballantyne, the best summary of the matter is contained in the following statement, made by Verchère at a meeting of the Société de Médecine Publique et d'hygiéne professionnelle: "Quant aux sensations voluptueuses qui peuvent se produire, elles n'apparaissent que lorsque la femme le veut bien."

The effect of cycle-riding in moulding the pelvis of young girls is worthy of some attention. It is said that the result is to press the ischial tuberosities upwards and inwards, and so narrow the pelvic outlet; and that pressure upon the perineum will cause condensation and atrophy thereof, and so add "atrocious" pains to the second stage of labour and liability to rupture. There will arise increased need for instrumental deliveries, for symphysiotomy and cœliotomy, and placenta prævia will be predisposed to; but even in the case of girls

riding at too early an age it does not necessarily follow that pressure on the ischial tuberosities will cause pelvic contraction, for direct pressure ought neither to approximate them nor to force them apart. Of course the use of a *badly-constructed* saddle will easily result in such harmful effects. It is probably for the same reason (*i.e.*, badly-constructed saddles) that the occurrence of *minor vulvar traumatisms* has been rendered possible. The cases of vulvitis, of erythema, abscess, and hæmatoma, of coccygodynia, and of ulceration and bruising of the vulva, frequency of micturition, and leucorrhœa which have been put on record, will nearly all be found to be readily explained by too long rides upon saddles that are too narrow and are provided with a high pommel or peak in front.

In seven cases of retroversion of the uterus, Pinard discovered the exciting cause in bicycling, and consequently forbade its use by women who had a tendency to uterine retroversions. In two cases of uterine myomata noted by Theilhaber, bicycling was followed by a large increase in the size of the fibroids ; and an instance of rupture of the hymen from a fall on the pommel has also been recorded. Several miscarriages have been traced to cycling, and the exercise ought not to be indulged in during pregnancy, and ought to be quite forbidden where miscarriages have occurred in preceding gestations.

Most writers are agreed that acute pelvic inflammation, recent displacements of the pelvic organs, fibromyomata, ovarian cysts, and hæmatoceles, form distinct contra-indications to cycling.

To these, E. B. Turner adds : (*a*,) pregnancy, (*b*,) menstruation, (*c*,) the three months following parturition, and (*d*,) before the age of seven years. Further, the morbid states of the heart, lungs, kidneys, and brain, which contra-indicate other forms of muscular exercise, will also preclude cycling.

In conclusion, the precautions for ladies cycling may be summed up in one sentence—The exercise must only be indulged in upon a suitable machine, in a suitable dress, and in a rational manner.

Most of the evil results which have arisen from cycling have been due to the dangerous tendency to do much riding, or to do it too quickly. With regard to the dress of the woman cyclist, it may be said that the shortened skirt and the modified corset constitute a costume at once hygienic and modest, and that it is not necessary to have recourse to "bloomers" or the divided skirt. The necessity of suitable woollen or flannel underclothing should be emphasised. The machine ought to be a good one, and ought to be fitted with pneumatic tyres, the drop frame, satisfactory brake, and the other equipments which go to make a "lady's safety" thoroughly deserving

of the name. The saddle should be broad enough to support the two ischial tuberosities, and it should have no central ridge, but rather a groove. These essential characteristics can be secured by placing two cushions for the ischia upon a flat metal plate, or by complete bifurcation of the seat, with an adjustable interval.

REFERENCES.—[1] "Med. Press and Circ.," July 20, 1898; [2] "La Gynécologie," Dec. 15, 1897.

BILE DUCTS (Surgery of). *Priestley Leech, M.D., F.R.C.S.*

W. S. Halsted[1] describes an ingenious device for suturing the bile ducts. He has devised little hammers, which he has used in suturing the common duct, five times in dogs, the common duct twice, and the cystic duct once in man. The duct is clearly exposed and two sutures are inserted for purposes of retraction, the incision being made between them; the stone is removed, the threads are drawn apart and the hammer is introduced. The duct is gently raised from its bed and drawn by the hammer towards the operator. Mattress stitches of silk are then applied, one over the heel, and the others in front of the handle. The finest threads are used, but they necessarily perforate the duct; no harm results as the duct is usually sterile.

He has also in several cases adopted Lange's plan of dividing ribs and the diaphragm, in order to reach the duct.

REFERENCE.—[1] "Johns Hopkins Hospital Reports," April, 1898.

BLACK EYE. (See "Eye-Lids, Diseases of.")

BLACKWATER FEVER. *W. Gilman Thompson, M.D., New York.*

Blackwater fever, otherwise known as malarial hæmoglobinuric fever or African hæmoglobinuric fever, has been the subject of much discussion at the annual meeting of the British Medical Association in July, 1898. R. M. Connelly[1] furnishes a very complete discussion of this important topic. He defines the disease as one "of Europeans resident in Western Equatorial Africa," and as "an acute specific fever characterised by rapid jaundice, hæmoglobinuria, and frequently suppression of the urine." He recognises three types: (*a*,) The sthenic; (*b*,) The insidious; (*c*,) The pernicious; and under each head gives clinical histories with temperature charts. Other recent contributions to the study of this disease have been made by Boisson,[2] Ferrier,[3] Kohlstock[4] (who regards the fever as malarial, not specific, and recommends **Quinine** for its treatment), Kuchel[5] and Stendel[6] (who also write of the use of large doses of quinine), and Yersin.[7]

Westerna Sambou,[8] of Naples, writes strongly against the view that quinine is capable of causing the disease, and without attempting to define the specific nature of the disease, he disclaims *in toto* its rela-

tion to ordinary malaria. The opening of the "Dark Continent" by England has given a new impetus to the study of tropical fevers, and hence the revival of interest in blackwater fever.

It is to be hoped that the commission appointed by the British Medical Association to investigate it will succeed in deciding between its claims to be either of malarial origin, allied to yellow fever, or due to some new bacillus.

REFERENCES.—[1] "Brit. Med. Journ.," Sept. 24, 1898; [2] "Rev. de méd.," 1896, xvi, 360-383; [3] "Lyon méd.," 1896, lxxxii, 323, 455; [4] "Deut. med. Woch.," 1895, 737; [5] Ibid., 1895, xxi, 446; [6] "Münch. med. Woch.," 1895, xliii, 1003; [7] "Compt. rend Soc. de biol.," 1895, ii, 447; [8] "Brit. Med. Journ.," Sept. 24, 1898, p. 866.

BLADDER (Diseases of). *E. Hurry Fenwick, F.R.C.S.*

Rupture of the Bladder.—Högarstedt [1] writes of those rare cases in which the symptoms of the wound of the bladder do not develop for several days after the injury. In his case, the patient three days after a fall suddenly experienced, in endeavouring to urinate, agonising cutting pain in the region of the bladder, and was unable to micturate. The catheter withdrew a pint of urine containing many red blood corpuscles. After this the patient was absolutely unable to pass urine spontaneously, and seven days from the development of the first bladder symptom the patient died of peritonitis. It is apparent the rupture did not originally involve the peritoneal coat, but as a result of inflammation this structure was so weakened that it was unable to resist the increased pressure incident to the effort at urination. This case, and others like it, show the importance of examining the urine for blood immediately following traumatism. If this be found in any considerable quantity, and if it is evident from the history of the case that the bladder is probably wounded, the application of continuous catheterisation for several days is indicated.

Stubenrath [2] has conducted experimental investigations on the elasticity and strength of the bladder and upon the mechanism of rupture, founding this latter study upon a statistical collection of cases in which either operation or autopsy demonstrated the seat of the nature of the lesion.

His conclusions are as follows: Isolated traumatic rupture of the bladder can only occur when considerable violence is exerted directly upon this organ, when the organ is at least partly filled with urine. Rupture of the bladder usually occurs as a result of over-distension of the organ. Only exceptionally is it noted in the fixed portions as the result of direct violence. The weakest part of the bladder from an anatomical standpoint is not necessarily so mechanically. The

posterior upper portion of the viscus is usually the seat of tear in seventy out of one hundred and fifty-four cases. The cause of rupture in this part of the organ can be attributed neither to pressure from the promontory nor to the longitudinal direction of the muscular fibres of the posterior wall. Comparatively large spaces between the muscular fibres in this region, and lack of support, seem to be the main causes of rupture in this locality. Ruptures may be multiple. The direction of tear is dependent upon the course of the muscular fibres, not upon the form of violence. The rupture may be complete or incomplete. Experimentally, incomplete ruptures are commonly due to force working slowly. These incomplete ruptures prove that the tear is from within outward. At first the mucous membrane gives way, then the muscular wall, and finally the peritoneum.

Intra-peritoneal Rupture of the Bladder.—Walter [3] states that in the Obuchow Hospital nine cases of traumatic intra-peritoneal rupture of the bladder were treated. Eight of these were operated on, seven died in from two to seven days of peritonitis, and two recovered. One case, aged forty-four, was operated on fourteen hours after the fall. A tear, two inches long, was found in the posterior wall of the bladder. It was closed by the Lembert-Czerny suture. Perineal section was then performed, and the bladder was drained for fourteen days. This patient recovered.

The second successful case was a man forty-eight years old, who was operated on thirty hours after injury. The lesions were found in the posterior wall ; there was a tear two and a half inches long through all the coats, five inches long through the serosa. The borders of this tear were freshened, and the wound was closed by two layers of suture. Continuous catheterisation was employed for three days. The abdominal wound was not completely closed, tampons being placed in the pelvis. After five days this tampon was found soaked with urine. A fistula formed which, however, thoroughly closed.

Tuberculous Cystitis.—In treating this subject from an experience of one hundred and sixteen cases, Prof. Guyon emphasises first of all the immense importance of general therapeutics, which applies to all forms of cystitis. There is not the danger of irritating the bladder in tuberculous cystitis as there is in other forms ; hence the diet should be abundant and extremely nourishing. **Creasote** ranks first among medicinal agents. He has found cod-liver oil useful. Local treatment must be very cautiously applied, as the bladder is exceedingly sensitive. It should be examined as little as possible and irrigation avoided. But the local treatment is extremely important and should be commenced from the first, confining it to very weak solutions.

He found boric acid, etc., injurious in any form, and restricts himself to **Sublimate** and **Guaiacol.** The sublimate is most effective; it is beneficial even in very weak solutions and in merely suspected cases. Four out of thirty-three patients treated with it were completely cured, five much improved, and eight moderately. He begins with a 1 to 5000 solution, raising this to 1 to 3000, and reducing the strength at the slightest evidence of irritation. It must always be borne in mind that the bladder cannot stand even the weakest solution in any form but gradual instillations: 30 to 40 drops are enough; 50 the maximum. The general treatment should be continued for months, even if all the symptoms have long ceased. The surgical treatment was high cystotomy in sixteen cases; one recovery, two improvements, seven deaths, and six negative results. Better results were obtained with the perineal drainage. With this in seven operations five were very much improved, one died, and one was not affected. Nine women curetted, per urethram, were all very much benefited with one exception.[4]

Intra-vesical Injection of Sterile Air as a Treatment for Tuberculous Cystitis.—F. Raymond[5] records three cases, considered to be tuberculous cystitis, in which the injection into the bladder of **Sterilised Air** seemed to be followed by benefit. An ordinary hydrocele syringe is used, a piece of wool within the syringe serving as a filter to the air. The bladder is catheterised, emptied, and injected with 100 c.c. of filtered air. This is allowed to issue, and 250 to 300 c.c. of filtered air is forced in. This latter is permitted to remain for five minutes, after which it is released. The procedure is not painful. "It should be repeated every two or three days until the patient is well." It is suggested that the improvement in the symptoms arises from the same agencies which affect tuberculous peritonitis so favourably after abdominal section. It is true that three cases are insufficient grounds for forming an opinion of the value of any form of treatment, but as temporary alleviation, at least, is reported to have ensued, it would be as well to entertain the proposal—with the reservation that it be only adopted in the earlier stages of the complaint, before the bladder contracts and the muscle stiffens.

Without depreciating this method in any way, the collator feels it necessary to point out that the grades in severity, and the phases in the evolution of urinary tuberculosis, are so complex that the greatest judgment will be needed in the selection of those cases which will repay the introduction of sterilised air; as an example, it is sufficient to point out that the bladder may be so brittle that it may rupture under any slight pressure, and that it not infrequently happens in

cases of tuberculous bladders that merely over-holding the urine produces a sharp hæmorrhage from surface laceration of the congested mucous membrane or ulcer.

The treatment of Contracture of the Bladder by Hydraulic Pressure.— Dr. H. Young[6] contributes an important paper on this subject. Since the opening of the Johns Hopkins Hospital in 1889, cystitis has been treated by **Vesical Irrigation** performed without the use of a catheter, hydraulic pressure being used to force the fluid through the urethra. It occurred to Dr. Young that this method might be used to dilate the bladder in cases of contracture from chronic cystitis. He reports eight cases, in all of which it proved most successful: for example, a man had suffered from severe chronic cystitis for fourteen years. The urine contained pus and blood, and micturition occurred every ten or fifteen minutes. He had been treated in numerous hospitals with internal remedies, and by local irrigations through the catheter with only temporary relief. Under hydraulic pressure 22 c.c. was the largest amount that the bladder would hold without severe pain. He was treated with irrigations of Thompson's fluid at a pressure of 4 feet. He rapidly improved, the urine became acid, the capacity of the bladder increased to 115 c.c. in eighteen days and to 250 c.c. in two months, when he could retain his urine for four hours. A year after the treatment was began there was no tendency to recurrence. Some points in the technique of Dr. Young's method may be mentioned. A conical urethral nozzle which will fit tightly the meatus is required. The patient lies on his back. The bag containing the fluid is elevated 3 or 4 feet, and the urethra is alternately distended and emptied to clean the anterior urethra; the nozzle is then pressed tightly into the meatus and the bag is raised to an elevation of 7 feet. The urethra will become ballooned, and for a time the flow will stop; soon the sphincters give way and the fluid enters the bladder, and the patient experiences a sensation of fulness and gradually increasing pain. The nozzle is withdrawn and the fluid is ejected with considerable force. The operation is repeated until about a quart of fluid has been used. Bland fluids, such as Thompson's or boric acid (2 per cent.), are the most satisfactory in general; silver nitrate ($\frac{1}{2}$ gr. to 1 oz.) may be used occasionally. The effect of the dilatation is probably to separate or loosen bundles of fibrous tissue and to smooth out pockets in the mucous membrane, and also to give the antiseptic the best opportunity of acting on the mucous membrane.

Is there any danger of ureteral reflux, and of carrying pus or organisms up to the kidneys? As a result of his clinical experience,

and of experiments on the cadaver, and on dogs, Dr. Young concludes that there is not.

Operative results in Tumours of the Bladder.—Albarran [7] placed the immediate mortality, after extirpation of benign bladder tumours, at 6 to 7 per cent., and of malignant at 45 per cent. He has, however, found that the percentage of recurrence has been diminishing since 1892.

Thus statistics taken in 1892 showed recurrence in 19 per cent. in benign growth. Those taken in 1894 showed only 14 per cent. recurrence.

He attributes this success to a more radical method of operation, viz., to a removal of the surrounding submucous tissue subjacent to the growth, and more of the mucous membrane surrounding it.

Albarran has operated in twenty-nine bladder tumours ; twenty-two were carcinoma, six papilloma, and one sarcoma. Six of these died (20 per cent. mortality). No return took place in the six papillomata.

The criticism of the statement that return is not so likely to take place when the mucous membrane and sub-mucous tissue in the neighbourhood of the tumour has been removed, finds its weightiest objection in the fact that many bladders seem prone to multiple deposits of villous papilloma.

REFERENCES.—[1] "St. Petersb. med. Woch.," No. 30, 1896 ; "Centralb. f. die Krank. der Harn und Sex.-Org.," Band viii, Heft 6, 1897 ; [2] "Archiv. f. Klin. Chir.," Band li, Heft 2 ; [3] "Vratch," No. 46, 1896 ; "Centralb. f. die Krank. der Harn und Sex.-Org.," Band viii, Heft 6, 1897 ; [4] "Journ. Amer. Med. Assoc.," July 3, 1897 ; [5] "Bull. med.," Feb. 3, 1898 ; [6] "Johns Hopkins Hosp. Bull.," May, 1898 ; [7] "Ann. des malad. des org. gén.-urin.," Aug., 1897.

BLEPHARITIS. (See "Eye-Lids, Diseases of.")

BONE (Trauma of) *Priestley Leech, M.D., F.R.C.S.*

D. S. Fairchild[1] in a paper on the remote effects of bone trauma, gives the following propositions as regards inflammation or irritation in bone following injury :—

(1,) Resolution with complete restoration of the bone to its normal condition occurs in the vast majority of cases.

(2,) Rarefying osteitis, condensing osteitis, or a combination of both may arise, and may remain as a more or less permanent condition ; if slight, they give rise to no well-marked subjective or objective signs after the process becomes arrested.

(3,) If the process continues for a period beyond a few months' well-marked and unmistakeable changes in the physical condition and appearance of the bone will result.

(4,) A persistent acute or chronic osteomyelitis will also give rise to unmistakeable physical changes in the bone.

(5,) A persistent osteo-periostitis will give rise to thickening of both periosteum and bone that can be readily recognised if the bone admit of easy surface examination.

(6,) If the products of inflammation in cases of rarefying osteitis or osteo-myelitis become infected with pus-forming microbes, the suppurative process will become plainly evident, except where the process is very limited.

(7,) The injury and irritation following it may establish a *locus minoris resistentiæ*, which may become the seat of tuberculosis infection with certain definite results. The time after an injury during which this may persist cannot be definitely determined, but the author does not believe that any scientific evidence or practical facts support the assumption that the locus minoris resistentiæ may continue for months or years after all signs of the injury and its immediate results have disappeared.

(8,) There is no evidence to show that a carcinoma or sarcoma may develop as the result of an injury after the immature bone elements have been transformed into tissue of a normal resisting physiological type.

REFERENCE.—1" Journ. of Amer. Med. Assoc.," July 10, 1897.

BOTRYOMYCOSIS. *T. Colcott Fox, M.B.*

The names *botryomycosis* (βοτρυς, grape ; μυκης, fungus) and *botryomycoma* have been given respectively to a disease process and to a species of tumour chiefly observed in the horse, but also occurring in bovines and the pig, characterised by the presence in certain tissues of a micro-organism called the *botryomyces*, which excite inflammatory new formations. The disease is closely analogous to actinomycosis.

Bollinger in 1870 first discovered the parasites in some fibrous nodules of a horse's lung, and in 1879 Rivolta and Micellone signalled its presence in the well-known new formations consecutive to the wounds produced by the operation of castration.

When cultivated on gelatin or potato, the organism is found as micrococci, closely resembling staphylococci; but in the tissues they are aggregated in yellowish mulberry colonies or masses of 5 to 6 μ. diameter. In the horse, the sites of predilection for the growths are the scrotum and testicular cord, but they may occur in other regions or be generalised. On the skin the lesions are like those of actinomycosis, and they may assume the aspect of diffuse thickening, or of circumscribed tumours from a nut to a man's head in size. Sections resemble actinomycosis. In the diseased tissues there occur, more or less,

extensive foci containing pus or softened material, enclosing the little pale yellow grains like sand.

Antonin Poncet and Louis Dor, of Lyons, brought before the French Congress of Surgery on October 18th, 1897, the fact that they had several times met with similar lesions in man, mostly on the hands, characterised by the formation of a sprouting papillomatous tumour, with smooth, uniform, very vascular vegetations, attached to the subjacent cutaneous tissues by a thin pedicle. The authors give drawings of these tumours, and of a section, and of the organism.

E. Legrain believes that he has met with the disease in Algeria, and gives two portraits.

Attention may be directed also to the contagious "Sarcomata" or *Infective Venereal Tumours in Dogs*, described by Bellingham Smith and Washbourn ("Path. Soc. Trans." Lond., 1897).

REFERENCES.—"Lyon méd.," Oct. 24, 1897, Jan. 30 and Feb. 6, 1898, and reprinted; Henri Chambon: "De la Botryomycose humaine, Thése de Lyon," with bibliography, 1897; Legrain: "Archives de parasitolgie," No. 1, 1898.

BRAIN (Surgery of the). *William Thorburn, F.R.C.S.*

No great advances have recently been made in this department of surgery; but numerous observations have been published, and they tend broadly to confirm conclusions previously stated in the "Medical Annual."

Diagnosis.—It is not possible to assert that any real improvement has been made in our diagnostic methods, and we can only refer to a few communications, taken from among many others, as illustrative cases.

Murri[1] discusses most elaborately a case of cerebellar tumour with complicated symptoms, which constitutes a valuable study in diagnosis. Enrich[2] records two cases of intra-cranial tumour, in which mental symptoms were especially well marked, and describes these symptoms from the standpoint of an alienist. A complete study of the psychial symptoms of frontal tumours is still urgently required, and presenting, as it does, almost insuperable difficulties for the surgeon, it can hardly be carried out except in asylums. The fact that a distinguished surgeon operated recently on the frontal region in a case, which proved to be one of cerebellar tumour, indicates the necessity for a careful study of the details of these difficult cases.

Among curiosities in the distribution of symptoms, we may mention a case recorded by Leclerc,[3] in which an injury to the apex of the skull gave rise to hæmorrhage, compressing the motor areas for

both lower limbs, and thus produced a pareplegia, simulating a spinal rather than a cranial injury.

The Röntgen Rays have been repeatedly employed in the diagnosis and localisation of bullets lodged within the brain, and have proved highly useful. Owing to the opacity of the cranium, a long exposure is essential, the time required being about an hour and a half. Reference may be made to cases reported by Scheier,[4] Meyer,[5] and Brissaud and Londe.

Percussion of the skull has been employed by many clinicians as a method of localisation of cranial tumours, but its value has been greatly doubted. Several experiences have satisfied the writer that it is often practicable to distinguish the percussion notes of the two sides of the skull in cases of intra-cranial growth. The note on the affected side appears to be sharper and of higher pitch, but a closer approximation to the site of the tumour I have found impossible. Possibly, the difference observed is due to increase of general tension upon the affected side. Analogous observations have been made by Bechterew[6] percussing the sacral region in tumours of the cauda equina. For obvious reasons, the method appears to have little practical value.

Topography.—A most elaborate method of determining intra-cranial localisations is given by Cox,[7] but its complexity is such that it is hardly likely to meet with practical acceptance, the more so as a special instrument is essential.

Morison[8] describes a modification of the method of Thane and Chiene for determining the position of the fissure of Rolando. Thane's point (half an inch behind the centre of the sagittal line, from the glabella to the external occipital protuberance) is determined by means of a piece of sterilised silk, and this point is made the apex of an isosceles triangle, of which the two equal sides are $3\frac{3}{4}$ inches long, the base being $4\frac{1}{8}$ inches long. The base is anterior, and one of the sides runs forward from Thane's point in the middle line. The other side then lies over the fissure of Rolando. The various measurements are made by the surgeon's fingers, the length of which is previously discovered.

Operative Methods and Technique.—It is now fully established that cerebral operations should, as a rule, be performed in two stages: the first including the opening of the skull, the second embracing all subsequent procedures, and being performed after an interval of several days; shock is thereby greatly diminished; tension and cerebral œdema are relieved before the brain itself is injured; and tumours appear to be occasionally partially extruded and rendered

more easy of access. For the opening of the skull, various forms of surgical engine have been devised, but so far they have not been much used in this country. Osteoplastic methods, by which large areas of the cranial vault are reflected, have been described in previous years of the "Medical Annual," and it is for such extensive operations that the rotatory saw or burr is principally useful; but these methods have met with little favour in England, and most surgeons continue to employ the trephine, cutting-forceps, and hand-saw. (See also "Skull.")

When large areas of brain are to be exposed, the flap method is generally employed, the bone being turned down with the scalp and replaced without complete separation of its continuity, as advocated by Doyen and others (*vide* previous issues of the "Medical Annual"); but in other cases the bone is removed, and much ingenuity has been exercised in filling the gap thus created. Re-implantation of large or small fragments of bone is still frequently resorted to, but there remains a want of evidence that such bone ever grows again, and it is probable that it acts only as a firm scaffolding for the deposit of fibrous tissue.

The covering of the gap by artificial means has thus continued to receive attention, aluminium and gold foil being principally employed. Numerous reported cases appear to prove beyond doubt that: (1) The subcranial adjustment of sterilised gold foil is unaccompanied by risk; (2,) The osseous defect is thereby more thoroughly secured; (3,) Adhesions of the brain to the cicatrix in the scalp are prevented, and probably the danger of epilepsy is hence diminished. The gold foil method of covering the brain or dura mater has thus met with increasing favour, and appears likely to maintain its position as a regular surgical procedure.

Puncture of the lateral ventricles and puncture of the spinal meninges have been repeatedly referred to in this work as means of relieving intra-cranial tension. They continue to be used with valuable palliative results, but no new methods have been adopted.

Resection of the cervical sympathetic for the relief of epilepsy has recently been strongly advocated by Jonnesco,[9] who completely removed the ganglionic chain on both sides. Temporary improvement was observed, but as none of the cases were followed for more than a few months the real value of the operation is not confirmed. Its re-introduction appears unlikely to meet with more success than its original adoption many years ago.

Results.—The ultimate results of cerebral surgery have not improved. Operation for tumour has probably a diminishing death

rate and, in the case of cysts, gummata, and non-malignant new growths, it is therefore capable of yielding an increasing number of brilliant results. In the case of epilepsy, on the other hand—whether traumatic or idiopathic—there is a marked diminution in the flow of cases reported as "cured," and the almost constant ultimate relapse of those submitted to operation, has apparently led to its partial abandonment.

The great surgical gain of the work of recent years has been the emphasis laid upon the necessity for immediate operation in all doubtful cases of head injury, and the greatly improved technique of the treatment of recent traumata will probably be followed by a diminishing frequency of cases of traumatic epilepsy. Craniectomy, for congenital mental defect, is also steadily losing such favour as it at one time obtained. Those who still frequently practise this operation report no brilliant results, and the opposite point of view is strongly maintained by many writers, *e.g.*, Telford Smith.[10]

REFERENCES.—[1] "Lancet," Jan. 30, 1897; [2] Ibid., Feb. 20, 1897; [3] "Deut. med. Woch.," May 7, 1896; [4] Ibid., Oct. 1, 1896; [5] "Med. Record," Feb. 6, 1897; [6] "Münch. Centralb.," Dec., 1896; [7] "Brit. Med. Journ.," April 9, 1897; [8] Ibid., 1896, No. 1868; [9] "Centralb. f. Chir.," Jan., 1897; [10] "Journ. of Mental Sci.," Jan., 1896, and July, 1897.

BRIGHT'S DISEASE. *Prof. R. Saundby, M.D., LL.D., F.R.C.P.*

The use of **Cantharides*** in the treatment of acute Bright's disease has been over and over again recommended, and there would seem to be some ground for the supposition that it is useful in suitable cases. Myszynska[1] has reported on the results in ten cases, in five of which marked benefit resulted. In two complicated by arterio-sclerosis the symptoms were aggravated, and in one tubercular case the albuminuria was increased. He gave the remedy in doses of from 6 to 11 drops in a glass of milk; he thinks it is a powerful drug which should be given with intervening periods of repose, and should be avoided in cases of arterio-sclerosis.

Pulverenti[2] has recommended **Ergotin** in the treatment of acute nephritis. He thinks it should not be used where there are any uræmic symptoms, or where there is atrophy of the kidney or arterio-sclerosis; the dose employed is about 4 grains of ergotin, with about 6 grains of gallic acid, four to six times daily for five or six days.

*Those who have advocated the use of Cantharides in acute inflammation of kidney have always insisted upon the necessity of its employment in minute doses, and recognised that doses above 1 minim of Tincture would be liable to aggravate the disease, without increasing the therapeutic effect.—Editor "Medical Annual."

Allison has sanctioned the employment of **Thyroid Extract** in chronic Bright's disease, especially those cases following attacks of diphtheria and scarlet fever.

In the treatment of uræmia, Ewald[3] has insisted upon the value of **Venesection,** and recommends a copious blood-letting to the extent of twelve to twenty-four ounces. This view is probably not in accordance with British experience. He thinks bleeding may be usefully combined with the infusion of physiological salt solution.

A method of treating uræmic dyspnœa by large doses of **Ether** has recently found favour in France.[4] The remedy is given by subcutaneous injection, and the dose employed is 2 c.c. every hour until diuresis is established. The total quantity of ether given in twenty-four hours is from 60 to 96 c.c. (2 to 3 ounces). The injections are painful, but the benefit derived is said to make the patient submit cheerfully to the treatment. This method differs greatly from the small doses of ether given on sugar, recommended by Eichhorst.

Ewart[5] recommends that dropsy should be treated by drainage, and to facilitate this, suggests that the bed should be raised at the head, so that the fluid may gravitate towards the patient's feet. He thinks the dropsical fluid contains a large proportion of poisonous material which the patient is well rid of; and he goes so far as to propose the artificial production of dropsy by means of Esmarch's bandage, so as to produce an effusion of serum into the cellular tissue, which could then be drained away.

It is often exceedingly difficult to control hæmaturia, and it may be safely asserted that we possess no drug upon which we can surely rely. Levy[6] has called attention to the value of **Tincture of Guaiacum** in certain cases, although he has no explanation of its mode of action. The dose is from ½ a drachm to a drachm, and it may be given in milk every four hours.

Praetorius[7] has described an interesting case of so-called cyclical albuminuria, in which the albumin was present in the morning and disappeared as the day went on. But it was associated with an enlarged liver, which was recognised later to be due to hydatids, and was cured by incision and drainage. After recovery from the operation, the albuminuria entirely disappeared. This is important, because the opinion is generally entertained that these cases are essentially "functional" in their nature.

Bellendall[8] has observed two cases of hereditary granular kidney in two children, whose mother was the subject of chronic nephritis. She apparently commenced to suffer during her pregnancy with the

elder child, which lived to two years of age, the other dying at six months. No other etiological factor could be discovered.

Most text books on physiology refer to the occasional excretion of urea by the skin, but the occurrence is sufficiently rare to render a new case welcome as a distinct aid to faith. Jahnel[9] relates that during the last eight days of life of a case of chronic Bright's disease, the forehead, nose, and chest were covered with an efflorescence of a white powdery material, which formed crusts near the margin of the scalp, and under the microscope was seen to be composed of clumps of epidermic cells and crystals. The latter gave all the chemical reactions of urea.

Frank[10] has related a case of severe hæmaturia originating in the bladder, and caused by uric acid crystals, which could be seen with the cystoscope. Simple washing did not suffice to remove them, but they were finally got rid of by pumping out the bladder with a Bigelow's aspirator.

Dr. Coleman Kemp[11] has shown that continuous intestinal irrigation with normal saline solution at 100° to 120° F. causes increase of renal secretion, which is very marked in twenty minutes, and he suggests that **Hot Saline Irrigation** might be usefully employed in cases of acute uræmic suppression. On the other hand, cold irrigation, and even the use of cold enemata, in renal diseases should be absolutely forbidden.

REFERENCES.—[1] "Gaz. hebdom.," April, 1897; [2] "Sem. méd.," p. 202, 1896; [3] "Brit. Med. Journ.," vol. ii., p. 1,049, 1898; [4] "Gallois Thèse de Lyon," 1897; "Lemoine Nord méd.," Sept., 1897; [5] "Brit. Med. Journ.," July 2, 1898; [6] "Med. Register," No. 3, 1897; [7] "Berlin. klin. Woch.," No. 14, 1898; [8] "Archiv. f. Kinderh.," vol. xxii., p. 61; [9] "Wien. med. Presse," No. 46, 1897; [10] "Wien. klin. Rundschau," No. 48, 1897; [11] "New York Med. Journ.," Jan. 29, 1898.

BRONCHIECTASIS. (See "Thorax.")

BRONCHITIS. (See also "Cough.")

F. de Havilland Hall, M.D., F.R.C.P.

The connection, if any, existing between the presence of micro-organisms in the bronchi and the onset of bronchitis has yet to be determined.

Dr. S. Dessy[1] has made some bacteriological researches upon cases of acute bronchitis occurring in the Military Hospital of Florence. He isolated a coccus which in some respects resembled a diplococcus and in others a streptococcus. The bacterium rapidly lost its virulence, so that the author was unable to make researches as to specific immunity after the method of Pfeiffer. It had many of the characters attributed by various authors to the streptococci of the mucous mem-

branes normally occurring in the mouth, vagina, etc., and ordinarily little or not at all pathogenic. The author thinks it probable that these streptococci ordinarily present in the mouth, in some way acquire virulence in the bronchial mucous membrane.

Graudy[2] confirms Neelsen's statement that the casts in fibrinous bronchitis are composed of mucus, but found none of Curschman's spirals in them. Though apparently made up of fibres, with leucocytes and epithelial cells, there was no colour given by Weigert's fibrin stain. The epithelium of the bronchi was generally intact, the goblet cells very numerous, and the glands showed mucoid degeneration. Thus the origin of the casts was obvious at least in this instance, and the process analogous to membranous colitis.

TREATMENT.—Dr. J. Leech[3] has done good service in calling attention to the inadequate doses of the drugs commonly employed in bronchitis. In the treatment of acute bronchitis of adults there is no better combination of drugs than that of **Acetate of Ammonia, Spiritus Ætheris Nitrosi,** and **Ipecacuanha** or **Antimony,** but in the case of the first-mentioned remedies the dose employed is generally too small. Liq. ammon. acetatis is often prescribed in drachm doses to be given every four hours; the author finds that not less than 2 drachms has any effect upon the skin, and believes that it is better to begin with doses of 3 drachms, and to increase the amount to 6 drachms if the skin does not act freely; marked relief to the breathing often accompanies the diaphoresis. With regard to sweet spirit of nitre, it is improbable that doses of 15 or 20 minims, in which this drug is often ordered, has any effect on the course of the disease; it may act in ½-drachm doses, but in doses of 1 or 2 drachms, especially when repeated at short intervals, it has commonly a very distinct effect as a diaphoretic. Owing to the ethyl nitrite which it contains (but in very variable quantity) sp. æth. nitrosi probably gives relief also by relaxing spasm of bronchial muscles and dilating the vessels. With reference to ipecacuanha and antimony, the author considers that antimony ($\frac{1}{20}$ gr.) is of most service where there are small basic moist sounds and the breathing is oppressed, whilst where there are dry rhonchi all over the chest, with irritable cough, ipecacuanha is more useful than antimony. In chronic bronchitis ammonia, senega, squill and ipecacuanha are the drugs most commonly employed, with digitalis and strychnine to counteract cardiac or respiratory failure. The dose in which carbonate of ammonia is frequently given is too small. A dose of 5 grains every four hours may have a beneficial action on the stomach as a carminative and antacid, but probably exerts no influence on the circulatory or respiratory organs, whilst a dose of 10

grains every hour or two causes distinct quickening and increased strength of the pulse, with deeper respiration and greater facility of expectoration. To produce the desired effect it should be given at short intervals. The usual combination of the drug with senega and squill makes an unpleasant mixture, and as the latter remedies cannot be administered at frequent intervals, the author recommends that the carbonate should be dissolved in water and given in milk; 5 grains may be thus given without imparting to the milk a taste to which the patient will object. Both senega and squill are gastric irritants, and should not be given at intervals of less than four hours. Clinical experience shows them to be of use as expectorants, but when there is much dyspnœa and accumulation in the bronchial tubes, ipecacuanha in large doses is of more service. Oxygen in inhalation, though not really a curative agent, often removes cyanosis and gives marked relief. Its use should be commenced early to prevent the onset of pronounced cyanosis, which, when once established, may be only slightly benefited by oxygen.

H. C. Wood[4] recommends the following prescription in bronchitis :—

℞	Potassium Citrate	℥ss	Syrup. Ipecac.	℥ij
	Lemon Juice	℥j	Aquæ	ad ℥iij

M. Sig.—One half-ounce four or six times a day for an adult.

In bronchitis of the aged the following combination has been found useful[5]:—

℞	Benzoic Acid	4½ grains	Tannic Acid	2¼ grains

M.—For one powder. Take four or five such daily.

In chronic bronchitis with an asthmatical tendency[6]:—

℞	Ammonium Chloride	℥iij	Fluid Ext. Lobelia	℥ss
	Fluid Ext. Grindelia	℥ss	Comp. Licorice Mixture	℥iss
	Fluid Ext. Quebracho	℥ss		

M. Sig.—The mixture is to be well shaken and a teaspoonful administered every three hours.

In the treatment of fœtid bronchitis and pulmonary gangrene Dumas[7] has found that the **Hyposulphite of Sodium** gives better results than any other drug. It may be administered in daily doses of from 2 to 3 drachms; it is eliminated partly by the urine and partly by the lungs. He considers that the hyposulphite of sodium is contra-indicated where there is a tendency to hæmoptysis, and for this reason it has to be used with some caution in phthisical patients with cavities. It does the most good in modifying the character of the expectoration in gangrene of the lung, being particularly useful in those cases which arise from traumatism, from the inhalation of irritant

or toxic materials, or from gangrene of the lung complicating other diseases.

In order to facilitate the draining of the secretion into the larger bronchi and hence its expectoration, Quincke[8] recommends that the patient should lie as flat as possible for two hours in the morning. The patient becomes accustomed to the position, even though with some difficulty, and can expectorate by turning the head to one side. After a few days the foot of the bed may also be raised 20 to 30 cm. In suitable cases the author says that in two to four weeks there is a considerable diminution in the sputum. This mode of treatment is adapted to cases of chronic bronchitis which have led to a cylindrical or sacculated bronchiectasis in the lower lobes of the lung. It is of no avail in cases of diffuse, and especially recent, bronchitis, with general secretion, or in cases of abscess cavities communicating laterally or incompletely with the bronchi, or of cavities with irritating contents. It may be difficult to distinguish between these conditions in practice, and this mode of treatment may help in the differential diagnosis. The number of suitable cases is not large, but at times the results are remarkable.

Molle[9] reports rapid improvement, amounting practically to a cure, in two cases of bronchiectasis in children by the use of the following mixture:—

℞ Eucalyptol	10 parts	Copaiba	80 parts
Creasote	25 parts	Oil of Sweet Almonds	
Tincture of Benzoin	50 parts	q.s. ad	200 parts.

M. Sig.—Give 30 drops daily by the rectum, in a little milk, and increase the amount gradually to one or two teaspoonfuls.

Dr. Nied[10] has obtained good results from the administration of **Guaiacol Carbonate** in acute bronchitis and influenza. The dose varied from 7 to 30 grains, twice daily. The effects were seen generally upon the second, latest on the fourth day. The appetite returned, and then commenced an abundant expectoration of mucus, which ceased within fourteen to twenty days.

Dr. G. Carrière[11] has published a detailed account of a case of streptococcic chronic bronchitis treated with great benefit by **Antistreptococcic Serum.** In this case there were febrile temperature, profuse sweats, and abundant expectoration in the morning. There were the general signs of bronchitis with emphysema, together with some evidence of a cavity at the left apex. The sputum was repeatedly examined, and while it contained neither bacilli nor elastic fibres, streptococci were constantly found to be present. After an injection of 10 c.c. of antistreptococcic serum, the temperature first rose, but

soon fell to normal, and improvement set in. A fortnight later the expectoration had greatly diminished in amount, not exceeding 5 or 6 oz., and was more mucous and less purulent. There was general improvement, although the physical signs were unaltered. A second injection of the same amount was made. Three weeks after the second injection, the patient left the hospital greatly improved. The cough was slight and the expectoration only amounted to between 1 and 2 oz. The cavity signs disappeared. In a month the patient was quite well.

M. Le Tanneur[12] has obtained good results from the use of **Ichthyol** in the following conditions: dry catarrh, with mucosities in small bronchi, difficult to expel, purulent catarrh and bronchial dilatation. He has also used it in acute bronchitis. (See article, "Ichthyol," page 42.)

He used 4-grain capsules, and gave from 4 to 8 daily.

REFERENCES.—[1] "Practitioner," Oct., 1897; [2] "Hospital," June 25, 1898; [3] "Quart. Med. Journ.," July, 1898; "Practitioner," May, 1898; [4] "Med. Times and Hosp. Gaz.," July 31, 1897; [5] "Medical Age," Aug. 25, 1896; [6] "Med. Record," July 25, 1896; [7] "Therap. Gaz.," Sept. 15, 1897; [8] "Brit. Med. Journ.," Epit. July 30, 1896; [9] "New York Med. Journ.," Aug. 21, 1897; [10] "Amer. Journ. Med. Sci.," Nov., 1897; [11] "Practitioner," Oct., 1897; [12] "New York Med. Journ.," Jan. 22, 1898.

BUBONIC PLAGUE. *W. Gilman Thompson, M.D., New York.*

Simpson read a paper on this topic at the British Medical Association meeting in July, 1898. In 1897–8 one hundred and twenty-three cases occurred in Calcutta. Haffkine and Bannerman at the same meeting gave a tabular demonstration of the great reduction in mortality produced by **Haffkine's Plague Protective Serum**; the mortality among the unprotected was greater by 86 per cent. than among the protected.

BURNS (other than those produced by Sunlight or Electricity).

T. Colcott Fox, M.B.

Dakyl insists on two important principles in the treatment of burns: first, that *the injured part should be left alone so long as it is dry*, for every change of dressing injures the delicate epidermis; secondly, that *no burnt surface should be left soaking in its own discharge, especially if that discharge be purulent.* When the wound is moist, therefore, the dressings must be changed, infinite care being taken not to injure the epidermis.

William Turner, surgeon to the Seaman's Hospital, London Docks, discusses, firstly, the local management of the part injured, and secondly, the treatment of the general effects produced.

Removal of Clothes intimately connected with the burnt parts are best effected by immersing the whole body in a bath, at about 100° F., preferably of some mild antiseptic lotion, such as boric acid lotion (℥ss to Hj of water).

Cleaning of the Burnt parts, to prevent the occurrence of sepsis, is exceedingly difficult, and sometimes impossible. The best method of purification is to wash the surrounding parts of skin with 1 in 20 carbolic acid lotion, and with soap and water and turpentine, and then well bathe the part injured with boric acid lotion, or 1 in 2,000 mercury perchloride lotion, by means of antiseptic wool. Any charred skin that can be detached will be removed.

The choice of a Dressing depends on the depth, the amount of surface injured, and the constitutional condition of the patient. In a burn of the first degree, the best dressing is **Boric Acid Ointment** spread on gauze previously soaked in a 2 per cent. creolin solution ; but if extensive and on the trunk, and especially in children, the warm bath treatment is indicated. In the second degree, large blisters should be punctured, and the epithelium left. When, however, sepsis occurs, and the bullæ retain pus, all the epithelium should be removed.

In the second, third, and fourth degrees, where the whole thickness of the skin is destroyed, the results to aim at are :—

(1,) The selection of a dressing requiring re-application, only as seldom as possible.

(2,) The choice of one that can be easily moistened when it has to be changed, and the foundation of which is not too woolly, so as to prevent sticking to the parts beneath.

(3,) A dressing that shall be aseptic and, if possible, antiseptic.

(4,) To exclude as much moisture as possible, and absorb any serous effusion as soon as it reaches the surface.

(5,) To exclude the air.

(6,) To relieve pain.

All these requirements are met, according to the author, by applying a single layer of linen rag, or the smooth side of lint (previously rendered aseptic by sterilisation or by dipping it in 1 in 20 carbolic, and afterwards washing it in distilled or sterilised water) soaked in a saturated solution of **Picric Acid.** Around and over this is wrapped dry salicylic or other antiseptic wool, and a bandage or splint applied. The dressing can be changed in two or three days, or, if sepsis is absent, at the end of a week. Only once has Turner met with a case of picric acid poisoning. Several cases were mentioned at the French Society of Surgery on January 19th, 1898.

The prevention of scarring in burns of the fourth degree is best

achieved by grafting *aseptic* surfaces. By applying strips of purified green protective, about ¼ of an inch wide, just overlapping the wound edges and each other, and covering the whole with gauze and wool, discharge is allowed to escape into the marginal parts of the dressing, and the granulations are kept dry.

In septic cases more frequent dressing and thorough irrigation is necessary. Deep sloughs can be encouraged to separate by a boric fomentation.

In the severer burns, where purification has been imperfect, a good dressing is double cyanide gauze, soaked in a 2 per cent. creolin solution, spread with boric acid ointment, and the whole covered with antiseptic wool and a bandage.

Shock in the severe cases requires the immediate exhibition of stimulants (coffee, brandy, hypodermic injections of ether, followed by strychnine) and warmth (hot bottles and hot blankets). The administration of an anæsthetic to permit of a thorough cleansing and dressing of the part is most useful, and morphine also is most valuable, and should be given before the patient recovers from the anæsthetic.

Ellice M. Alger also contributes an excellent article on the subject. For slight burns he prefers a 10 per cent. solution of **Ichthyol** with a little starch and egg albumen to what he calls the nasty, greasy, ill-smelling carron oil. He, like Turner, finds picric acid the best all-round dressing. It is very soluble in water, a fair antiseptic, a good oxidising and cornifying agent, with a high power of coagulating albumen. He advocates the use of **Esbach's Solution** (picric acid, 10; citric acid, 20; water to 100). The citric acid acidulates the albuminous exudate, which the picric acid then coagulates, and converts into an antiseptic and occlusive coagulum. After opening the bullæ the Esbach's solution should be sopped freely on, and made to enter the blisters.

Dakyl insists that picric acid is best adapted for superficial burns in which the whole of the epithelium is not destroyed, as it stimulates the proliferation of the deeper layers of epithelia. It is unsuited for cases in which burns are deep, for those in which there is sloughing, and for old suppurating ulcers. He says picric acid dissolved in ether or alcohol, and applied on gauze, gives better results than the watery solution, because the acid is precipitated as an impalpable powder, though the application as a powder is to be avoided.

Willems, of Ghent, agrees with the limitations of the value of picric acid. It is analgesic, he says. It only dissolves to the extent of about ½ per cent. in water. He uses a 1 to 2 per cent. vaseline ointment.

Marie B. Werner advocates the following treatment :—

(1,) Place the burned member or surface in a **Carbolised Bath** of from 2 to 5 per cent., depending on the age of the patient and the extent of the injured surface. A threefold effect is gained by this—*i.e.*, antisepsis, asepsis, anæsthesia.

(2,) Remove all the acid solution by a second bath in the physiological saline solution.

(3,) Dust the entire surface with a powder containing **Acetanilid** (1 part) and **Compound Zinc Stearate** (5 parts).

(4,) Cover surface with narrow strips of Lister's green protective, or, if economy must be studied, thin gutta-percha tissue can be used instead.

(5,) Place wet sublimated gauze, ten to twenty thicknesses, over and around the surface, followed by ordinary bandaging.

The subsequent dressings differ only in one or two points from the first, as stated above. The carbolised bath is substituted by one of either the saline solution or a weak solution of mercury bichloride, followed by a spray of hydrogen dioxide, which will aid in removing all the pus and loose dead tissues; after this the surface is dusted with the powder, and protective strips, gauze, and bandages are applied. These dressings are changed as often as needed, the extent and depth of the burn making its own rule, usually known by the amount of drainage and odour.

The advantages of this treatment over and above that of lotions, oils, or salves, are: Freedom from any accumulation of fats with dead epithelium, encouragement of a healthy epithelial granulation under a clean moist dressing, the Lister protective serving in the double capacity of preserving the new epithelial cells and as a temporary integument.

Finally, and not least in importance, there being almost an entire absence of fibrous tissue, there is less danger of those unsightly deformities often due to the contracting cicatrix, which is also so often accountable for the sluggish circulation and nerve pains.

Poggi immerses the burned part in a bath containing a few teaspoonfuls of **Potassium Nitrate**; or, apply a bandage wet with the solution. Phlyctænæ are said to be prevented.

Bardeen, of Baltimore, has studied the cases of five children, between sixteen months and eight years of age, who died of extensive superficial burns. "He insists that the changes seen in all the internal organs are very similar to those observed after fatal cases of certain fevers, the main effects of which are ascribed to toxic substances circulating in the blood."

Walton, of Ghent, and Von Kliegel, of Vienna, extol the virtues of **Aristol,** which may be used in all varieties of burns. In the superficial form the powder is best, while in the deeper burns the following ointment is to be preferred :—

℞ Aristol	1 part	Dissolve and add Vaseline	8 parts
Sterilised Olive Oil	2 parts		

The powder may be simultaneously dusted around the edges. The burns should be previously well irrigated with a weak solution of boric or carbolic acid, and the periphery well scrubbed.

REFERENCES.—Dakyl : "A Critical Essay on the Treatment of Burns, specially on Picric Acid," 2nd edit., Paris, 1898, reviewed by "Brit. Med. Journ."; W. Turner : "Med. Brief," Jan., 1898 ; Ellice M. Alger : "New York Med. Rec.," May 28, 1898 ; Willems, of Ghent : "Ann. de la Soc. Belge de Chir.," An. vi, No. 2, May 15, 1898; Marie B. Werner : "Polyclinic," Oct. 30, 1897, epitomised in "Therap. Gaz."; Bardeen : "Journ. of Exper. Med.," New York, Sept., 1897 ; Larouche : French Surgical Society, Jan. 19, 1898.

CANCER. *Keith W. Monsarrat, F.R.C.S., E.*

It is convenient and permissible to include both sarcoma and carcinoma under the one term "cancer." Though the two classes of malignant tumours differ in their morbid anatomy, and to some extent in their clinical manifestations, there is evidence to show that they agree in their pathology, and the general outlines of the history of each are similar. In either case, the pathological process may be described as an irregular attempt on the part of the normal cells of the tissue to reproduce themselves indefinitely, which is only partially successful. As a result we have groups and masses of cells imperfectly reproducing the characters of the cells of the tissue in which they have had their origin. We may fairly assume that in both the inciting element to this exuberant and ill-regulated growth is of one and the same nature, and all recent work tends to confirm us in the assumption.

The remarkable increase of cancer mortality, as reported in the official returns of the Registrar General, continues to exercise the minds of the profession and the public. Mr. Thorburn, in an address before the Insurance Society o Manchester, expressed the opinion that this increase is due to the fact that the diminished mortality of the earlier years of life allows more individuals to attain the period at which cancer plays a prominent part. As supporting his opinion, he states that the average age at death of males dying from cancer has increased by five years, while that of females has increased by two years. This is, of course, evidence against any increased virulence in the disease. His deductions from statistics are, however, controverted by

Newsholme,[1] in whose opinion the apparent increase is not real, but due to more exactness in diagnosis and certification. The cause of disturbance of death-rates, on which Thorburn's explanation is entirely based, has been eliminated by Newsholme in his investigation by a method of correction for age, *i.e.*, length of life and sex, and he is able to prove thereby that some further explanation than that of Thorburn is required. Further, against the first explanation is the telling fact that the number of males, twenty-five years of age and upwards, per million of all ages was practically identical in the decades 1871–80 and 1881–90, while the average death-rate from cancer increased in the proportion of about 7 to 9·5. That the whole of this increase can be credited to improved diagnosis is a matter incapable of demonstration, positively or negatively. It seems, however, a somewhat remarkable assumption that the diagnosis of a disease, never amongst the very obscure, became so greatly improved between the above-mentioned decades as to sufficiently account for this great increase in the registration returns. Many surgeons of note continue to express their conviction of the actual increase of cancer cases within the last decades, and the attempts to explain it away have not been entirely convincing.

Distribution.—Important observations have recently been made confirming and extending the view expressed by Haviland in 1892, that cancer is most prevalent in low-lying districts near rivers which are liable to floods. Noël[2] after an exhaustive examination of the subject comes to the conclusion that cancer districts are either closely populated or, if the houses are scattered about, a stream connects them. He has also added the important observation that cancer mortality is exceptionally high close to woods, especially those in which arboreal tumours are prevalent.

Noël Nason[3] has also compiled statistics relating to districts in the neighbourhood of Nuneaton and Stratford-on-Avon. These strongly support the observations that cancer is very unduly prevalent in districts that are low-lying and in proximity to streams. The districts free are those on a high level and with a sharp fall. In the districts named there is no single exception to this rule, and the closer to the stream the more marked the mortality. He seeks an explanation of these facts in the theory of a protozoön with a life history analogous to that of the malarial parasite.

The idea of a connection between arboreal and human cancer was first suggested by Fiessinger, and has been developed by Noël.[4] It originated in the observations of the natural features of cancer districts, and the study of the malignant vegetable tumours found in

woods and orchards. Not only do "cancer houses" abound in such districts, but individuals whose avocations bring them into these surroundings show a cancer proclivity above the average.

Amongst other illustrations of this, he mentions the fact that cancer of the lip is said to be unknown in Lyons, and those who apply at the hospitals for treatment for this complaint come from the rural districts.

These vegetable tumours are apparently contagious, as several usually exist on neighbouring trees. A probable method of transmission of the infecting material is found in the fact that insects have a predilection for this arboreal cancer, and may distribute it in passing from tree to tree. On the other hand there are facts to uphold the supposition that the infection is water-borne, and assuming a connection between the disease and human cancer it would be in this way that it is transmitted to man. No experimental work has yet been done to maintain the assumption. These tumours kill large numbers of trees and plants, by interfering with their nutrition and by toxic action.

Pathology.—This possible connection with the vegetable world derives additional interest from the fact that recent investigations on the presence of a parasite in cancer go to show that the organism found by many pathologists and credited with being the cause of the disease belongs to a class of the fungi, the blastomycetæ. The question is far from being yet decided to the satisfaction of all, but this work is the most complete and convincing hitherto published.

Mr. Ballance,[5] whose extensive work on the subject in conjunction with Mr. Shattock, is well known, recently stated that all their attempts to discover a protozoic parasite had been negative in their results, and that inoculation experiments had been similarly unsuccessful. Against the protozoic character of such a parasite, he mentioned the fact that encapsuled protozoa had chitin or cellulose in their capsules, but neither substance was to be found in fresh scirrhous tumour. The fact that no albumose is to be found in carcinomatous growths, he also mentioned as rendering it unlikely that the parasite belonged to the class of pathogenic bacteria. In spite of the ill-success attending his experiments, he affirmed that the doctrine of the parasitic origin of cancer is one that recommends itself in view of what is known pathologically of other and analogous diseases and processes.

Most prominent amongst those who have recently published work on the parasite are Sanfelice and, independently, Roncali. They are agreed in assigning the organism to the class blastomycetæ. The

account of the organism given by Roncali [6] is as follows : There is a double-edged capsule with an intense refraction of light, or a coloured capsule, ovoid or spherical ; within is a homogeneous or granular chromatic protoplasm. In the centre of the cell are usually three or four granules, but no nucleus. The method of propagation is by budding from the mother-cell. The organisms have a predilection for aniline dyes, and stain in a characteristic way with malachite green and safranin, with Ehrlich's solution and with carmine. The degenerate forms, which are numerous, have irregular shapes, very commonly a battledore shape, and do not take the stains.

These bodies [7] are found in the protoplasm of the cells and in the connective tissue of malignant tumours, and they are extraneous and not derived from the cells. They are morphologically similar to the structures described by so many other authors, and most commonly called coccidia (Ruffer and Plimmer, Korotneff, etc.), but are identical in character with the members of the order blastomycetæ, which includes the common yeast, saccharomyces cerevisiæ. They are found in small numbers near the periphery of the tumours. Roncali calls the organism he describes, blastomycetes vitro-simile, and he also adopts the name saccharomyces lithogenes from Sanfelice.

Inoculation of the organism produces tumours similar to those naturally occurring in man and animals, and as found in the tissues of inoculated animals gives the same reactions as those naturally found in human tumours. Roncali states that in his opinion the existence of these blastomycetes may be regarded as settled.

Sanfelice [8] has made experiments with the organisms he has named S. lithogenes and S. neoformans, on the mouse, the white rat, the rabbit, the dog and the fowl. Those animals that died succumbed in periods varying from eight days to two months. Post-mortem, numerous small nodes were found in the omentum and small grey foci in the spleen and the kidney. Cultures of the S. neoformans were made from the blood of the mouse, rat and rabbit.

Sanfelice [9] has also published a later series of experiments on cats. In these animals, after death, the S. neoformans was found most numerously in the mesenteric glands, the spleen and the bone-marrow ; in some sections in great numbers. He maintains that none of the authors who have ascribed the fuchsine corpuscles of Russell to cell degeneration have supported their theory by experiment. Secondly, that after inoculation, the S. neoformans produces the typical bodies described by various authors in malignant disease, and that these corpuscles are not normally present in the tissues of cats.

Maffucci and Sirleo have described a genus of saccharomyces niger capable of producing tumours by inoculation, and this is probably identical with the organisms of Roncali and Sanfelice. Curtis (quoted by Roncali) describes S. subcutaneus tumefaciens isolated by him from a myxosarcoma and successfully inoculated.

Contrasted somewhat with the work of the above authors, Bosc [10] describes an organism in cancer which he confidently classes among the sporozoa, on the ground of its staining properties, structure, and methods of reproduction. He describes reproduction by sporulation and by direct nuclear division. He obtained a growth from tumours by placing small portions in fluid blood, but was unable to separate any pure culture from it. He quotes three cases of successful inoculation of melanotic sarcoma on to the guinea pig, and three of cancer on to the dog, and maintains that all the features of cancer are explainable on the parasitic theory.

The work of the two Italian pathologists fulfils all the well-known requirements stated by Koch for the proof of causal relationship between organism and disease.

Roncali [11] mentions the frequent difficulty in demonstrating the presence of the organism, and he is in the habit of making serial sections from about one hundred different pieces of the tumour.

Cultivation is more simple, as the parasite grows readily on ordinary media, if these are rendered acid, *e.g.*, acid-bouillon, acid sugar solution. It is to be hoped that the correctness of the deductions of these observers will be widely put to the test by other pathologists.

Brault has drawn attention to the fact that rapidity of growths in tumours varies in direct proportion to the amount of glycogen present in them. From this fact he has deduced the theory that the proliferation and luxurious growth of the cancer cells is due to the increased supply of this food material to them. He also remarks that the disease commonly occurs in organs where glycogen is present in large quantities.

Letulle [12] has also demonstrated the presence of glycogen in a colloid cancer of the duodenum.

Between these observations and the statement that the organism belongs to the blastomycetæ one may justifiably suggest the connection, that as glycogen is one of the compounds in which other members of this group and the amylolytic enzymes develop and produce their characteristic action, so it, or one of its derivatives, may be the normal pabulum of the saccharomyces neoformans, and its presence in quantity in certain organs may be one of the determining factors of the proliferation of the organism in them. This point

gains some additional interest from the work of De Backer, to be mentioned below, and his treatment of cancer by injection of pure cultures of the ordinary yeast fungus.

The relation of cancer to injury has been treated of fully by Berger[13] in a recent article. His researches have confirmed the conviction that injury influences the external manifestation and locality of the disease as a predisposing factor. The form of injury most effective in giving rise to cancer is a succession of minor traumatisms causing local hæmorrhages and local malnutrition, and the connection between cancer and injury consists of an unbroken series of morbid phenomena, each dependent on its predecessor. If the parasitic origin of cancer be accepted, the influence of injury is easily understood, in the same way as it is recognised as a determining and localising factor in tuberculosis and other diseases of known parasitic origin.

TREATMENT.—The treatment of inoperable cancer by **Oöphorectomy** first suggested by Dr. Beatson in 1896, has been put to the test by a considerable number of surgeons. The experience thus gained has certainly proved that extirpation of ovaries does influence the progress of the disease, but apparently also that this influence is not permanent. Dr. Beatson's first case which was cited as a complete success has since shown manifestations of a return of the cancer, after a period of nearly three years.

Mr. Stanley Boyd[14] has published five cases in which marked improvement followed the operation, though no actual cure is recorded; the breast was the seat of the disease in all these. Mr. Boyd mentions cases of uterine cancer only to remark that the result of oöphorectomy here gives little encouragement to success; it is also interesting to remark that in one of his five cases the ovaries were so atrophied that it was difficult to conceive of their possessing any physiological influence.

Mr. Watson Cheyne[15] has published two cases of mammary cancer thus treated; in the first there was marked improvement after the operation, in the second no appreciable beneficial result. He recommends the removal of as much of the noticeable disease as possible in addition to the oöphorectomy. A satisfactory result has recently been obtained by Dr. Herman;[16] a patient in whom axillary and supraclavicular glands were both affected had her ovaries removed by him, and **Thyroid Extract** was administered in doses of 10 grains to 15 grains. The disease entirely subsided, and at the time the case was reported the patient had been free for fourteen months.

Dr. Beatson, Mr. Watson Cheyne, and Dr. Herman administered thyroid extract for a long period after the operation.

A case in which recurrent mammary cancer disappeared under the use of thyroid extract alone is reported by Page and Bishop.[17] The disease had returned four months after the first operation, and now two years after the recurrence the patient is reported as quite well. The maximum amount given was 15 grains of the extract daily.

Several new methods of treatment have of late been brought forward, credited with some success in producing atrophy of the cancer masses. For many years Hasse[18] has practised a method of "Interstitial injections of alcohol." He injects 60 minims to 80 minims of **Alcohol,** diluted to 30 per cent. to 50 per cent. into the circumference of the growth at intervals of three or more days according to the amount of local reaction set up. The method is said to be ineffectual in epithelioma of the face, but in breast-cancer Hasse reports thirty-five successful cases without relapse scattered over a period of twenty-five years.[19] Injections into the substance of the growth is unattended by beneficial results.

A case is reported by Dr. Yeats[20] where injections produced a rapid atrophic change in a large tumour accompanied by axillary infection ; 22 to 25 syringefuls containing 20 minims of a 40 per cent. dilution were used on seventeen occasions. After death, which resulted from secondary hepatic scirrhus, the tumour examined by Prof. Delépine presented the appearance of atrophied scirrhous carcinoma, and he was of opinion that the connective tissue proliferation and the atrophy of the epithelial cells might be fairly attributed to the injections.

Kuh[21] reports success by this method in a case of primary cancer of the naso-pharynx ; failure in a case of epithelioma of the face, partial success in two cases of scirrhous mammæ, and failure in one, which he ascribes to faulty technique.[22]

The method of treatment by injection of the **Mixed Toxins** of the streptococcus pyog. and the bacillus prodig. has, during the last few years, had a fairly extensive trial. Dr. Coley in his latest writings limits its use to sarcomata of the spindle-celled variety, and the experience of other surgeons seems to fall into line with this advice. In carcinoma its trial has been almost entirely abandoned.

Mr. Mansell Moullin[23] has given the method more attention than any other surgeon in this country, and has recently given particulars of ten cases. In three of these the tumour disappeared and there was no recurrence ; in two others there was temporary diminution of the growth. The description given, unfortunately, leaves some doubt

as to the real nature of the tumours in the cases of cure. Two fatal cases are recorded ; one an old man in whom the second injection caused a rigor and prostration from which he did not rally ; the other patient died from pyæmia, apparently from infection from a sloughing growth.

Mr. Marmaduke Shield[24] relates four cases without good result, one dying from pyæmia, two refusing to continue the treatment in consequence of the illness caused, and one showed no result, the growth continuing to extend.

Korpp[25] also reports employment of the method with a negative result. It is thus seen that the results are not encouraging, but the treatment rests on a sound clinical basis, the observed and admitted effect of an attack of erysipelas on the growth of sarcoma, and in selected cases, *e.g.*, of spindle-celled sarcomata, *where there is no alternative treatment*, may still be employed with some hope of success. Mr. Mansell Moullin administers the toxins in doses of ½ minim to 8 minims until the desired reactionary temperature of about 103° is reached. The cases dying from pyæmia after injection show the necessity of rendering the tumour as far as possible aseptic, as the source of the fatal complication has been a sloughing growth in those reported.

A full bibliography on the subject has recently been published by Roncali.[25]

The treatment of cancer by the injection of pure cultures of the **Yeast Ferment**, the method of Dr. De Backer,[27] has hitherto attained only a very limited popularity. The author has for some time used these injections in the treatment of phthisis, being led to do so by experimental evidence that this organism is an energetic phagocyte. It was, however, the work of Brault, above referred to, which suggested its use in cancer. Dr. De Backer argued that there being evidence that glycogen is the most serviceable food material for the development of a cancerous growth, if he could reduce the amount of this material, the growth would proportionately decline. This, under ordinary circumstances, the yeast fungus is capable of doing. The treatment has been attended by results which have fully satisfied him, and which will, no doubt, induce others to put it to the test. The organism must be obtained in absolutely pure culture, and this is not a very easy matter. It belongs to the same class as that in which Roncali and Sanfelice have placed the cancer-parasite. Possibly its beneficial action may have some other explanation in view of this fact, but at the present stage it is useless to theorise on the matter.

Some years ago Denissenko recommended the use of **Chelidonium Majus** in cancer. A 50 per cent. solution of the extract is used and injected into the growth and its surroundings, and in addition 60 grains to 90 grains are given daily by the mouth. The result in the experience of most of those who have tried the method has been some softening of the tumour, rendering it, according to Religioki, abruptly demarcated from the healthy tissues around ; but the drug does not seem to have any specific action. Winter and Schmitt[28] report its use in fourteen cases of uterine cancer without any benefit to the patient. Finkelstein[29] records a similarly disappointing experience. There seems to be no likelihood that the method will be retained.

Massey[30] has for some time treated cases of carcinoma and sarcoma by the **Cataphoric diffusion of Mercury** from gold electrodes, a method which he first introduced in 1893.

As at present practised by him the method is as follows : A large flat electrode (the negative pole) is applied to the back, and three small gold electrodes (the positive pole) are thrust into the tumour. These gold electrodes are hollow needles the proximal ends of which may be of platinum or silver, the distal ends of 18-carat gold. After insertion into the tumour mercury is injected through the electrodes, and the current is then turned on. This may be of a strength of from 300 to 1500 milliamp., and is continued for from thirty to forty minutes. Anæsthesia is necessary. Nascent oxychlorides of mercury are formed and diffused in directions radiating from the electrodes. In a growth of any size two, three, or more sittings will be necessary at intervals of a month to six weeks. As a result of the application the tumour at once shrinks *en masse*, and this is followed by an irritative reaction ; discharge comes daily through the openings made by the electrodes ; asepsis is easily maintained. Massey has used considerable quantities of mercury without any symptoms of poisoning. He reports eleven cases, in six of which the method was followed by complete recovery.

Operative Treatment.—No remarkable addition to the general principles of the operative treatment of cancer has been made during the past year The principle of prophylaxis, so graphically inculcated by the researches of Heidenhain and Stiles on carcinoma of the breast, has now gained almost universal acceptance. It has, however, been clearly shown that the carrying out of the principle to its logical extent is in most cases anatomically impossible. To take as an illustration the disease as it is found in the mammary gland. If we were to extirpate all the lymphatic channels through which the cancer cells may extend, and the first chain of glands to which they

are distributed, we should have to attack mediastinal, deep cervical and subcostal groups, together with the vessels entering them, in addition to the usual extirpation of the lymph vessels and glands of the axilla. This is obviously an absurd proposition. The same limitations to prophylaxis are met with everywhere, and recurrence must continue to depend largely on the particular vagaries of the growth in its lymphatic extension, whatever surgical procedure is undertaken for its extirpation. Plainly, however, this fact cannot be used as an argument against the adoption of the most extensive prophylatic procedure that can legitimately be undertaken in any given case.

Recent pathological work having rendered more and more probable the parasitic origin of the disease, the possibility of infection has come to be recognised. To avoid this the knife is so used as to avoid section of any cancerous material during the operation, and if this accident should happen means are taken to disinfect the wound. For the same reason the growth, the lymphatics running from it, and the glands which they enter, are to be removed in one mass where possible, but here again we find ourselves in some situations face to face with anatomical impossibilities. The limitations and shortcomings of the operative treatment are sufficiently apparent, but they do not seem to justify the answer Robinski has given to the question he has proposed to himself, whether or not to operate at all in cancer. His answer is practically an unqualified negative. It is difficult to imagine that he has ever had the opportunity of studying the statistics of, say, Mr. Watson Cheyne's operations on cancer of the breast, and Mr. Butlin's on cancer of the tongue. Cancer is believed by most to be essentially a local disease, and therefore it is capable of cure by early and free removal ; the assumption that it is local is fully justified by the weight of opinion in its favour, especially in view of the evidence for a parasitic origin. The success of future operative measures will be based on the better diagnosis of the earlier stages of the disease, and further researches on the lymph channels along which it may spread.

Breast.—A discussion took place recently before the Royal Medical and Chirurgical Society[31] in the course of which many surgeons expressed their views on the comparative value of the "new" and the "old" operation for carcinomatous mammæ. Mr. Marmaduke Shield brought forward statistics showing that the results of the older operation were not so universally bad as usually stated. Some of the senior surgeons present expressed preference for the old operation, but the majority of the speakers advocated the more extensive method

of removal, with which the names of Stiles, Halsted and Meyer are connected. Mr. Barker pointed out that affected glands in the axilla could by no means always be felt and that, therefore, failure to discover any is an altogether unsafe ground on which to decline to clear out the region.

Tongue.—Küttner has recently described and delineated the lymphatics of the tongue, and added considerably to the work of Sappey in this connection.

Mr. Butlin[32] in his Hunterian lecture describes a routine operation for removal of the glands in the neck to which the lingual lymphatics run. They are dissected out through two incisions, the first from the mastoid process to below the thyroid cartilage and along the anterior border of the sterno-mastoid ; the second from the symphysis menti to meet the first at the upper border of the thyroid cartilage. There are three groups here accessible : the submental, the submaxillary, and the carotid. Where the posterior part of the tongue is involved the group of parotid glands should also be removed. In the course of his lecture, Mr. Butlin gives very strong reasons against the routine removal of the whole tongue in every case ; his statistics of successes have markedly improved during the last ten years. The operation for removal of the glands is not undertaken until some three or four weeks after the excision of the tongue.

Rectum.—Prof. Ball,[33] in a paper on the treatment of cancer of the rectum, expresses the opinion that the perineal route should be completely discarded for all cases except where the anus alone is affected. He recommends the method of trans-sacral excision by removal of the coccyx and transverse division of the sacrum through the fifth vertebra, and considers the removal of the entire piece of bone much preferable to any osteoplastic operation. Great stress is laid by Mr. Ball on the preliminary preparation, but he is not in the habit of performing a preliminary colotomy as some other well-known surgeons advise.

The lower part of the gut is dissected out down to the pelvic diaphragm, and the mucous membrane to the anus, the sphincter being carefully preserved. Then the upper segment is freed sufficiently to bring it out at the anus, and there it is sutured. In freeing this portion it is advisable to keep as far from the wall of the bowel as possible, so as to include the vessels passing down in the hollow of the sacrum for its supply. Prof. Ball prefers this method to the formation of a sacral anus, and considers that the conditions under which an end-to-end junction is advisable rarely occur.

REFERENCES.—[1] "Brit. Med. Journ.," i, p. 74, 1898 ; [2] Ibid., ii,

Epit., p. 5, 1897 ; [3] Ibid., i, p. 679, 1898 ; [4] Loc. cit. supra. ; [5] "Brit. Med. Journ.," i, 438, 1898 ; [6] "Journ. Pathol. and Bacteriol.," v, 1–12, 1898 ; [7] "Centralb. f. Bakteriol.," B. xxi,, 318 ; [8] Ibid., B. xxi., 158 ; [9] Ibid., 7 and 8, 1898 ; [10] "Compt. rendus Acad. des sci. Paris.," pp. 1161 and 1293, 1898 ; [11] Loc. cit. ; [12] "Gaz. des hôpit.," Dec. 9, 1897 ; [13] "Brit. Med. Journ.," ii, Epit., p. 18, 1897 ; [14] Ibid., ii, 890, 1897 ; [15] Ibid., i, 1194, 1898 ; [16] "Lancet," i, 1612, 1898 ; [17] Ibid., i, 1460, 1898 ; [18] "Archiv f. Path. Anatom.," Berlin, cxlix, 236 ; [19] "Virchow's Archiv," v, 249, 1897 ; [20] "Brit. Med. Journ.," ii, 808, 1897 ; [21] "Med. Rec.," April 17, 1897 ; [22] "Philad. Med. Journ.," i, 22, 995 ; [23] "Treatment of Sarcoma and Carcinoma by Injection of mixed Toxins," London, 1898 ; [24] "Med. Press and Circ.," March 24, 1897 ; [25] "Wien. med. Woch.," xlv, 513 ; [26] "Centralb. f. Bakteriol.," pp. 782, 858, 1897 ; [27] "Brit. Med. Journ.," ii, 802, 1897, and "Journ. de méd. de Paris," ix, 276, 1897 ; [28] "Centralb. f. Gynäk.," July 10, 1897 ; [29] "Brit. Med. Journ.," i, Epit. 114, 1898 ; [30] "Med. Record," July 31, 1897 ; "Philadelph. Med. Journ.," i. 12, p. 512 ; [31] "Proc. Royal Med. and Chir. Soc.," 3s, x, 34 ; [32] "Brit. Med. Journ.," i, 541, 1898 ; [33] Ibid., ii, 1066, 1897.

CANCER OF LARYNX. (See "Larynx, Disorders of.")

CARRION'S DISEASE. (See "Verruga Peruviana.")

CATARACT. *William Oliver Moore, M.D., New York.*

Ebner[1] reports four hundred extractions of senile cataract by Prof. Von Rothmund.

Puncture and counter-puncture are made in the sclera; the centre of the section is placed in the corneal margin, usually with the formation of a narrow conjunctival flap. A very small iridectomy is made. Simple extraction is practised only in comparatively young and healthy subjects, and if the other eye has been previously operated upon successfully. Soft, traumatic, and adherent cataracts are extracted outward with iridectomy. Extraction downward is practised if the patient is unable to look down, and on deeply sunken globes. Cortex is evacuated by stroking the globe through the lower lid after removal of the speculum. Patients are kept in bed five or six days with both eyes bandaged.

From May, 1890, to July, 1896, Von Rothmund performed four hundred and fifty-eight extractions of senile cataract. For extraneous reasons, fifty-eight of these are rejected from the present statistics. Of the remaining four hundred, of which twenty-five were complicated, the visual acuity was satisfactory (at least one-tenth) in 63·5 per cent.; 1·7 per cent. were total failures. In sixty cases the post-operative astigmatism was found a fortnight after operation to vary from 1·5 to 10 D., with an average of 4·7 D. In forty-five patients who returned for examination the vision had improved spontaneously

in 42 per cent. Discission was practised in forty-six cases, with improvement of vision in 87 per cent. Cyclitis occurred in two cases. Iridodialysis took place in one case during operation. In seven, completion of the operation had to be postponed on account of hæmorrhage following the iridectomy without detriment to the final result. In twenty-four cases preliminary iridectomy was practised. Dislocation of the lens while opening the capsule took place in six cases. Capsule-forceps were employed eleven times. The lens was extracted with Graefe's scoop in nineteen cases. Loss of vitreous occurred in thirteen cases, with termination in phthisis bulbi in one. The largest amount lost was one-fourth of the whole. Corneal infection took place fourteen times, with loss of the eye in four cases. Iridocyclitis was noted in nineteen, twice after discharge from the hospital. In ten of these the sight was lost. Secondary glaucoma occurred once in a highly myopic eye, with detachment of the retina.

As regards prognosis, while positive response to the usual tests is in general favourable, it does not absolutely exclude disappointments. Thus, in one case with normal function to ante-operative tests, an old detachment of the retina was found after extraction. On the other hand, five cases with complete lack of power to recognise colours resulted in good vision, and presented no complications whatever. Of thirty-nine cases of hypermature cataract the vision was satisfactory in but eighteen ; in ten cases of adherent cataract the result was satisfactory in five.

REFERENCE.—[1] "Münch. med Woch.," xliv, Jahr., No. 16.

CEREBRO-SPINAL FEVER (Epidemic).

W. Gilman Thompson, M.D., New York.

Capt. J. W. Buchanan [1] describes several cases studied in the large gaols of Bengal, where it is not uncommon, and where the etiology is obscure. It is also encountered upon the emigrant ships trading between the East and West Indies, and in emigration Coolie depots of Calcutta.

The disease in Bengal is regarded as contagious, but epidemics of any considerable size have not occurred of late, although in the Alipur gaol it has persisted for ten years in succession.

W. T. Councilman,[2] assisted by F. B. Mallory and J. H. Wright, furnishes a capital study of an epidemic of one hundred and eleven cases in Boston. In fifty-five of these, lumbar puncture was performed for diagnosis, and in thirty-eight the diplococcus intracellularis of Weichselbaum was found. The whole article is exhaustive and

thorough, and is one of the best contributions to the etiology and pathology of this disease yet made.

Stoeltzner[3] contributes the history of a case in a child two and a-half years old, from whom the meningococcus intracellularis was obtained by lumbar puncture.

REFERENCES.—[1] "Brit. Med. Journ.," Sept. 24, 1898; [2] "Amer. Journ. Med. Sci.," Mar., 1898; [3] "Berl. klin. Woch.," Apl. 19, 1897, p. 333.

CHEST. (See "Thorax.")

CHLOROSIS. *Henry Dwight Chapin, M.D., New York.*

Dr. Chas. E. Simon[1] has studied thirty-one cases of chlorosis, with special reference to etiology and dietetic treatment. He reaches the following conclusions:—

(1,) An anatomical basis of chlorosis has not been satisfactorily determined.

(2,) A perversion of the appetite—excessive consumption of starches and sugars—is a common symptom of chlorosis.

(3,) The development of chlorosis is due to an insufficient consumption of animal proteids.

(4,) Chlorosis is far more common than is generally supposed, and occurs in both sexes and at almost all ages.

(5,) The diagnosis of chlorosis should be based altogether upon an examination of the blood.

(6,) The term chlorosis should be discarded, and "simple anæmia" substituted.

(7,) Iron is not a specific in the treatment of chlorosis.

(8,) In the treatment of the disease, attention should primarily be directed to the **Diet.**

(9,) In cases in which iron fails, satisfactory results may be obtained, without medication, from a suitable diet, in which animal proteids, bone-marrow, and dark beer, are the principal factors.

(10,) The beneficial effects of bone-marrow are not due to the amount of iron which it contains.

REFERENCE.—[1] "Amer. Journ. Med. Sci.," vol. cxiii., No. 4, 1897.

CHOLERA. *W. Gilman Thompson, M.D., New York.*

Achard and Bensaude give the results of the serum test made in fourteen cases of Asiatic cholera, in which the diagnosis had been confirmed by bacteriological examination of the stools. In thirteen cases agglutination of cholera bacilli was obtained by addition of a 1 to 10 or 15 dilution of the blood serum, and one case gave the reaction in a dilution of 1 to 120. The reaction, unlike the Widal reaction for

enteric fever, appears much earlier, being noticed twice on the first day of the disease, three times on the second day, and four times on the third day, whereas in enteric fever it very rarely appears by the fourth day, and is not common before the seventh.

CHOREA. *Græme M. Hammond, M.D., New York.*

Fedoron[1] reports five cases in girls from seven to fourteen years old, who were treated with **Massage** and **Gymnastics.** All the patients were anæmic and badly nourished, but had previously been healthy. The internal organs were normal.

TREATMENT.—This consisted in **Tub-Baths** of 27° R.; in some cases **Iron** and **Arsenic** were administered, and with this a general massage of the entire body. In three or four days the chronic movements became weaker. In one severe case improvement was delayed for four weeks.

After the symptoms began to improve, passive gymnastics—flexion and extension of the limbs and head—were practised. Recovery took place in from two to six weeks; in more severe cases in two and a half months. Contraindications to this treatment are acute polyarthritis and severe valvular disease of the heart. In those cases which follow infectious diseases, improvement may be due to the increased circulation, and a consequent increase in metabolism, with resulting excretion of the toxins circulating in the system.

Cheron[2] also speaks highly of the value of methodically used massage and passive movements practised several times daily, together with cold baths, cold douches, cold packs, and notably cold, violent sprays against the vertebral column of a temperature of from 8° to 10° C. for about a quarter to half a minute.

Heart complications form no contraindication to the use of cold water, as children seldom show any signs of circulatory difficulty. The heart should be examined daily, and its condition forms a guide to the choice of whatever form of cold-therapy seems indicated.

REFERENCES.—[1] "Ind. Lancet," June 1, 1898: [2] "Journ. Nerv. and Ment. Dis.," Jan., 1898.

CLEFT PALATE (Operative treatment of)

Priestley Leech, M.D., F.R.C.S.

Owen[1] gives the following directions for the treatment of cleft palate. If the cleft involves the soft palate only, and the child is in a satisfactory state of health, the operation may be done within a few months of birth. If the hard palate be implicated he advises waiting another year. However wide the cleft of the hard and soft palate may be he

prefers to operate on it at one time, in place of dividing the operation into two parts.

One necessary preliminary is to get the child into good condition. All patent foods should be discarded and the child fed on fresh cow's milk and water, the milk being treated so as to render it as close an imitation as possible of human milk. The child, if in poor condition, should also be rubbed with olive oil—regularly massaged in front of the fire—after his warm bath and before being put to bed. He should also sleep in a long flannel night dress or pyjamas. Give cod-liver oil ; if the child can't take it don't let him know it is being given to him ; and this may be done by giving him sardines and as soon as the box is opened pour off the cotton seed oil and replace it by cod-liver oil. Extract or clean and fill any carious teeth there may be ; remove any enlarged tonsils and clear out any adenoids there may be. Operate in fine warm weather, if possible ; change of room and fresh air are very necessary.

Operate with the head hanging over the table ; this position is the best although there may be serious trouble with the respiration, and the danger of blood going into the larynx is not entirely got rid of.

Chloroform with Junker's inhaler is the best anæsthetic. Smith's gag is the best, and before inserting the gag it is well to pass a large looped suture through the tip of the tongue so that it can be pulled out of the mouth and kept under command. Remove the strip from the edge of the cleft in one piece if possible, and examine the strip to see if a raw edge has been left all round. The best knives are old tonsil bistouries which have been often ground. Next make a cut three-quarters of an inch long, close to the inner side of the molar teeth of each superior maxilla. By means of raspatories introduced through these incisions the muco-periosteum is detached from the hard palate. The next thing is to disconnect the aponeurosis from the hard palate, so as to get the half of the velum and the hinder part of the muco-periosteal flap to the middle line.

The success of the operation depends largely upon the thoroughness with which this is done. The best way of doing it is as follows : Take a pair of scissors bent upon the flat almost to a right angle ; one blade is passed between the detached muco-periosteum and the under surface of the back of the hard palate, and the other is passed through the cleft and over the back of the velum where it springs from the posterior border of the hard palate. Between the blades of the scissors are placed the thin layer of mucous membrane which is continued on to the back of the velum from the floor of the nasal fossa, and the aponeurosis of the soft palate with that part of the spreading tendon

of the tensor palati which is inserted into the under surface of the horizontal process of the palate bone. When the cut has been made the whole sheet of muco-periosteum and velum hangs loose. Eight or ten sutures are required, which may be of silver wire or silk-worm gut. Begin to tie at the incisor teeth, and work backwards. If the flaps won't meet in the middle line the two lateral incisions by the molar teeth must be prolonged backwards.

REFERENCES.—[1] "Lancet," Jan. 29, 1898.

COLON (Idiopathic Dilatation of). *Priestley Leech, M.D., F.R.C.S.*

Treves[1] describes a very interesting case of this condition. In elderly adults, he believes that the great majority of the cases are examples of simple dilatation of the bowel above an imperfect but definite obstruction. In children, he thinks most are due to a congenital narrowing of the lower extremity of the large intestine.

He gives notes of an illustrative case in a little girl, five years and nine months old. She had suffered from repeated attacks of constipation and abdominal distension, which were only relieved by enemata, purgatives having no effect. These attacks of obstruction became more frequent and of longer duration. The distension became enormous, and when the distension was at its maximum the child was unable to move. Abdominal section was done, when a gigantic coil of colon presented, which looked and felt like an adult stomach and which appeared to fill up the whole abdomen. The lower part of the bowel, corresponding to the rectum and sigmoid flexure, was represented by a straight solid looking tube, about the size of an adult's forefinger, and some eight or nine inches in length. The junction between the dilated gut and the narrow tube was quite abrupt. The colon was opened and a large gum elastic catheter was passed through the rectum into the dilated portion of bowel. The opening into the colon was closed, but the suture line was brought into the centre of the parietal incision, so that an artificial anus could be established at any time. The child was relieved for some time, but the tube became blocked and an artificial anus was established. This proved unsatisfactory, so Treves decided to excise the colon from the splenic flexure to the anus. This was done, the end of the transverse colon being brought down to the anus. The child recovered, and he thinks the child will in time obtain control over the new anus.

Cheadle[2] gives notes of a case where the transverse colon was punctured with a fine trocar, to let off the gas which was distending the colon. The patient recovered, and under a course of **Massage** and **Electrical Stimulation** of the gut, combined with the exhibition of

Strychnia and **Saline Laxatives**, treatment extending over a long period of many months, the patient permanently recovered.

REFERENCES.—[1]" Lancet," Jan. 29, 1898 ; [2]Ibid., Feb. 5, 1898.

COLOSTOMY. *Charles B. Kelsey, M.D., New York.*

Treating of the misuse of colostomy, Charles B. Kelsey says, whether the disease in any particular case be a proctitis due to catarrh, dysentery or tuberculous deposit, makes no difference in the treatment now to be advocated. Colostomy is never curative any more than dilatation and incision have been before it. The artificial anus is generally a source of constant annoyance, and requires constant attention. The bowel is liable to prolapse, ventral hernia is not uncommon, and erosion or ulceration of the exposed mucosa is often present. After a consideration of these points and the advance of pelvic surgery in the last fifteen years, Dr. Kelsey, although having been a pronounced advocate of colostomy, has come to limit its applicability to inoperable cancer, and in all other cases, whether of malignant or non-malignant ulceration, to recommend a direct attack upon the disease itself through the posterior incision (Kraske's operation).

As to the comparative dangers of the two operations Dr. Kelsey says there is no question that colostomy has the advantage, but still the mortality of the Kraske operation is nothing like it used to be since it has grown to the present perfection of technique. It has become as much an operation of precision as abdominal hysterectomy, and attended by no greater mortality. In his last twenty-five cases Dr. Kelsey only lost one, the patient dying of a weak heart. He claims that the mortality ought not to be over 5 per cent. in the hands of experienced operators, and says there can be no discussion as to the comparative comfort of two women, one having an ulcerated rectum and artificial anus in the groin, and the other who, having undergone the operation of excision, has a useful anus in the perineum.

Early operation, he claims, means easier operation. After stricture and other deeper-seated pathologic processes have once formed, it was useless to go on with topical applications, with bougies, divulsions and nickings. The radical operation should then be proposed. In the preparation of the patient Dr. Kelsey recommends the anus to be plugged with iodoform gauze previous to the operation, and by sewing this into the rectum by a purse-string suture around the anus, escape of intestinal contents into the wound is avoided. He examines the tubes and ovaries through the Kraske incision when operating on

women, and does any work upon the adnexa that seems strongly indicated.

He concludes that in general terms the operation is indicated in all non-malignant ulceration and stricture of the rectum; that the operation is not followed by "good sphincter control" any more than is colostomy, but the anus is where nature placed it, and often of enough power to prevent the escape of a solid passage for sufficient time to allow the patient to seek the closet.

REFERENCES.—"Memphis Lancet," Oct. 1898; "New York Med. Record," July 9, 1898.

COLOTOMY. *Priestley Leech, M.D., F.R.C.S.*

Paul[1] has tried the following method of operating in two cases:—

An incision is made at the usual site, in the line of the internal oblique fibres. The sigmoid is withdrawn and attached to the deep part of the wound by one or two sutures only, and it is then passed directly backwards for about 2 to 2½ inches between the external and internal oblique muscles, where it is brought to the surface, opened and sutured, the original wound being entirely closed.

The opening of the bowel thus lies behind and external to the usual incision. It does not however give any natural control over the act of defæcation. A truss with a horse-shoe shaped pad seems to act admirably. The pad compresses the bowel where it runs in the abdominal wall, and quite prevents the escape of fæces until it is removed. The operation takes longer than the usual one but is not severe.

In another case he divided the bowel, the rectal end being stitched to the lower end of the first incision, and the upper end passed between the muscles as before.

REFERENCES.—[1] "Lancet," June 11, 1898. See also article by the late Greig Smith, in "Lancet," July 23, 1898.

CONJUNCTIVA (Diseases of).

William Oliver Moore, M.D., New York.

Noyes[1] reports the case of an Italian labourer, who had *pemphigus of the conjunctiva*, which caused extreme symblepharon which could not be relieved, although several surgical measures were resorted to. The cornea grew dull, and perception of light only remained. The case is recorded only as an instance of varied and persistent methods of surgical treatment where result was entirely negative.

Vernal Conjunctivitis.—Darier[2] says treatment of this form is best by **Bathing** with water, or water in which carbolic acid or creolin has been dissolved, using this three or four times a day. Silver nitrate, or copper sulphate, is not indicated unless the secretion is abundant.

In the *pericorneal* form of spring catarrh, the best treatment is **Massage** of the cornea with mercurial ointment made up with lanolin. In the *tarsal* form, where the papillary hypertrophy is not excessive, **Scarification**, with the lines close together and crossed, is of much service. These scarifications may be repeated several times.

Chronic Membranous Conjunctivitis.—Harlan[3] and Howe[4] both report cases of this affection. In Harlan's case there was a growth from under the upper lid, fibrous in character and extending over most of the lid, consisting of an organised membrane, thick, yellowish white, easily detached, but leaving a bleeding surface behind. It had all the macroscopical appearances of diphtheritic membrane as seen in the throat, but no diphtheria bacilli were found. This condition had been existent for six years; the cornea had sloughed years before. Powdered jequirity used produced violent inflammation of the lids, sore throat, and fever. The membrane in the throat showed the bacilli of diphtheria. **Antitoxin** was given with prompt relief to all diphtheritic symptoms.

In Howe's case, a boy eight years old, the membrane had lasted for eighteen months unaffected by treatment. A sister of the boy had similar trouble. An acute exacerbation each had, and the sister's eye was lost. Repeated bacteriological examinations failed to show diphtheria bacilli, except during acute trouble, when the throat was affected, and the bacilli were found in the ocular secretion. At the time of the boy's acute attack, two children that had been in the same ward developed diphtheria and died. In each of these cases only one eye was affected.

Infectious Conjunctivitis.—Coppez[5] gives the following list of bacilli that may produce conjunctivitis: The gonococcus may cause purulent, catarrhal, granular, or pseudo-membranous conjunctivitis; Week's bacillus may cause catarrhal and pseudo-membranous forms; the pneumococcus may cause catarrhal, phlyctenular, purulent, granular, and pseudo-membranous forms; the streptococcus may cause lachrymo-catarrhal, pustular, and pseudo-membranous forms; staphylococci may be responsible for catarrhal, purulent, phlyctenular, and pseudo-membranous conjunctivitis; and the Klebs-Löffler bacillus for catarrhal and pseudo-membranous.

Epithelial Xerosis of the Conjunctiva.—Stephenson[5] says this is not uncommon in England, since among six thousand two hundred and nine children he had found no fewer than 1·87 per cent. affected. Its relationship to night-blindness he considered something more than merely accidental; besides the conjunctival symptoms he had found

changes in the visual field. He considers such cases having epithelial xerosis in a state of torpor retinæ. The disease is due to a lowered condition of nutrition, and to dazzling by bright light.

Blaud's pill of **Iron** was found useful, the hæmoglobin was reduced, and the red blood-cells were usually reduced in number.

Foreign Body in Conjunctiva.—Taylor[7] reports a case of a foreign body concealed in the conjunctival sac for eight weeks. The eye was inflamed, and there was muco-purulent discharge which welled over on to the cheek, while the cornea was becoming hazy. Taylor had seen similar cases, and at once concluded that there was a foreign body embedded in the conjunctiva; the patient said he had no recollection of any such accident, and although the lids were carefully everted, there was no evidence of any extraneous substance. Being very sensitive and resistant, the patient was placed on the operating table, and while he was under the influence of an anæsthetic, Taylor succeeded with his finger in dislodging an ear of corn, which is reproduced in exact size in the accompanying illustration (*Fig.* 14). All the symptoms subsided at once, the discharge eased, the cornea cleared, and the patient resumed his occupation.

Fig. 14.—Foreign body concealed in sac of conjunctiva for eight weeks.

Diphtheria of the Conjunctiva.—Stephenson[8] says there is confusion likely to arise between Klebs-Löffler bacilli on the one hand and xerosis bacilli on the other. The latter are to be found in very many cases of conjunctivitis, and so marked in their resemblance to diphtheria bacilli that a mistake may be easily made if the investigation be not conducted with an eye to the fallacy.

Briefly, the main points of distinction are these:—

(1,) Both stain by Gram's method, but in my experience the diphtheria organism loses its gentian violet, when in alcohol, much more quickly than the xerosis bacillus.

(2,) Klebs-Löffler bacilli, according to Eyre,[9] give rise to an acid reaction when grown in neutral bouillon or milk, while xerosis bacilli never do.

(3,) The xerosis organism, when inoculated into guinea-pigs, causes nothing more than a swelling at the site of the puncture.

Ophthalmia Neonatorum.—Everbusch[10] finds that **Eserine** instilled into the eye often succeeds in markedly diminishing the suppuration in the conjunctivitis of infants. Where there is no corneal ulceration silver nitrate is not used, but the pus is removed every few hours by absorbent cotton, and the eye washed with a 7 to 1,000 solution of **Sodium Chloride**, or a 3 per cent. **Boric Acid** solution, and once daily

an instillation of 1 drop of a 1 to 200 solution of salicylate of eserine. When one eye alone is affected, he drops a solution of **Silver Nitrate** (2 per cent.) into it as a prophylactic, and also has the root of the nose rubbed with boric acid. When the cornea is ulcerated, the conjunctiva is brushed with the same solution of silver nitrate, and three or four times a day a 1 to 400 solution of eserine, or a 1 to 1,000 **Scopolamine** solution, is instilled into the eye. Lastly, 1 drop of a mixture, containing 1 part of **Chlorine** water to 2 or 3 parts of distilled water, is instilled hourly into the conjunctival cul-de-sac.

Infants with ophthalmia neonatorum should not be bathed, as refrigeration causes an aggravation in the condition of the eyes.

Disinfection of the Conjunctiva.—Imre[11] has for some time been looking for a remedy that would disinfect the conjunctiva, and also cause contraction of the vessels. This he has found in **Argentamin** (ethylenediamine silver phosphate). It possesses greater disinfecting powers than silver nitrate, and, at the same time, passes more deeply into the tissues. For irrigation, a solution containing 1 to 5,000 to 1 to 4,000 is used. The solution is decomposed on the surface of the conjunctiva in the same manner as silver nitrate, but it does not enter into combination with the albumin of the tissues.

The applications can be made four or five times daily if necesary, as there is no irritation produced.

REFERENCES.—[1] Amer. Journ. Med. Sci.," July, 1897, and "New York Eye and Ear Infirmary Repts.," 1897 ; [2] "Ann. d'Ophth.," July, 1897 ; [3] "Journ. Eye, Ear, and Throat Dis.," Oct., 1897 ; [4] "Trans. Amer. Ophth. Soc.," 1897 ; [5] "Amer. Med. and Surg. Bull.," Nov., 1897; [6] "Lancet," Feb. 12, 1898 ; [7] Ibid., Jan. 20, 1898 ; [8] "Brit. Med. Journ.," June 18, 1898 ; [9] "Journ. of Path. and Bacter.," July, 1896 ; [10] "Med. Week.," v., p. 264 ; [11] "Pediatrics," March, 1898.

CONJUNCTIVITIS. (See "Conjunctiva, Diseases of.")

CORYZA. *F. de Havilland Hall, M.D., F.R.C.P.*

To abort coryza H. B. Whitney[1] recommends the following plan :—**Dover's Powder** and **Phenacetin,** of each 10 grains, are put into four capsules ; 2 of these are given at once, and the patient remains for about ten minutes in a hot bath. He then takes a hot lemonade or rum punch and gets between several thicknesses of heated blankets. In half an hour the second 2 capsules are given, unless perspiration is already abundant. Such perspiration should continue for an hour, after which the skin is slowly dried, and the patient retires for the night to a comfortable bed.

Among the various topical applications for the relief of coryza, the following have been found serviceable[2]:—

℞ Chloral gr. viij | Castor Oil ℥ss

M. To be smeared over the nasal mucous membrane after preliminary cleansing of the surface.

℞ Subnitrate of Bismuth ℥j | Hydrochlorate of Morphine grn. j
Powdered Camphor grns. 10 | Hydrochlorate of Cocaine grn. j
Powd. Boric Acid grns. 30 | Powdered Benzoin grns. 15

A pinch to be snuffed up the nostrils.[3]

℞ Uranium Acetate 1 to 2 parts | Distilled Water 20 parts

M. Sig.—2 or 3 drops to be snuffed up daily.[4]

The following is the formula known as Ferrier's snuff, which is often effectual in aborting a cold:—

℞ Morphiæ Hydrochlorat. gr. 2 | Bismuth Subnitrat. ℥vj
Pulv. Acaciæ ℥ij |

M. Ft. pulv. One-quarter to one-half may be used in twenty-four hours.

The following is the formula of a remedy very popular in Germany, and known as "Hager-Brand's Olfactory":—

℞ Acid. Carbolici | Alcoholis ℥ij
Liq. Ammon. Fort. āā ℥v |

To be kept in a dark place or in a tinted glass bottle. To be used as smelling salts, as required.

The following snuff is recommended by Dobell[5] in chronic post-nasal catarrh:—

℞ Camphor | White Sugar
Tannic Acid āā ℥j | High-dried Welsh Snuff āā ℥j

M. Ft. pulv. A pinch to be taken once in the morning and evening, and once or twice during the day.

The snuff is to be discontinued if a fresh attack of nasal catarrh sets in, but should be resumed on the subsidence of inflammatory symptoms.

Garel[6] gives the following formula for a snuff:—

℞ Menthol 1 part | Boric Acid 16 parts
Ammon. Chlor. or Salol, 4 parts |

M.

Inasmuch as, by reason of the nasal obstruction, it is difficult for the patient to snuff up the powder, it is well to insufflate it through a rubber tube.

Unna, of Hamburg, recommends the sparing use of the following spray:—

℞ Ichthyol 1 part | Ether
Alcohol āā 100 parts

M.

REFERENCES.—[1] "Med. Times and Hosp. Gaz.," June 5, 1897; [2] "Practitioner," Jan., 1898; [3] "Therap. Gaz.," Sept. 15, 1897; [4] "New York Med. Journ.," April 30, 1898; [5] "Practitioner," Oct., 1897; [6] "New York Med. Journ.," May 14, 1898.

COUGH.

F. de Havilland Hall, M.D., F.R.C.P.

There is no symptom which is dependent on a greater variety of causes than cough. Consequently, nothing can be more unscientific than the administration of some sedative cough linctus without a careful examination to discover the cause of the trouble. The importance of a systematic examination of the whole of the upper respiratory tract must be insisted on, nor should the ear be neglected.

The signs that point to the conclusions that the cough is of a reflex origin are: (1,) When it is spasmodic, practically constant, without expectoration and temperature; (2,) When the physical signs of pulmonary disease are absent; (3,) When it persistently resists all medication; (4,) When the general health remains comparatively undisturbed; (5,) When upon removal of cause it promptly ceases.

In addition to the unusual causes of cough may be mentioned two given by Rice[1]: (1,) Hypertrophied glossal papillæ, overlapping an epiglottis which is bent far forward but otherwise normal; (2,) A congenitally asymmetrical epiglottis, which has been made still longer by inflammation caused by constant friction with the tongue.

The following cough mixtures have been recommended:—

℞ Liq. Morphine Acetate	℥iij	Mucilage of Gum Arabic	℥ijss
Dilute Nitric Acid	℥iss	Glycerin	℥ij
Honey of Squill	℥iv	Syrup of Red Poppy	℥ij

Cinnamon- and rose-water ad ℥vj

Sig.—1 or 2 teaspoonfuls five, six, or seven times in the twenty-four hours.

(The coughing in pertussis may be similarly relieved.[2])

℞ Syrup of Ipecac. 8 to 10 parts		Potassium Bromide	1 part
Syrup of Tolu		Linden Water	75 parts
Brandy or Rum	āā 20 parts		

M. Sig.—A tablespoonful every two hours.[3]

Dr. James K. Crook[4] says that the following formulæ have been thoroughly tested in both hospital and private practice, and render good service in suitable cases. For irritative coughs:—

℞ Phenacetin	gr. 20–40	Sacch. Albi	℥ij
Ext. Glycyrrhizæ	gr. 20		

Fiat pulvis, in chartulas 20 dividendus. Sig.—One to be taken at one, two, or three hour intervals.

For the same of more obstinate character :—

℞ Phenacetin	gr. 50	Codeinæ Sulphatis	gr. 2–4
Ext. Glycyrrhizæ	gr. 20	Sacch. Albi	ʒij

Fiat pulvis, in chartulas 20 dividendus. Sig.—One to be taken every two, three, or four hours.

℞ Ammonii Carbonatis	ʒij	Aquæ Cinnamomi	ʒij
Acidi Salicylici	ʒijss		

M. Sig.—Teaspoonful in a little water every three hours.

Sänger[5] thinks that **Hydrastis Canadensis** in doses of 20 or 30 drops of the fluid extract is superior to all other drugs for phthisical cough.

Verstraeten[6] is cited as testifying to the marvellous action of hydrastis. He has employed it in the form of pills, each containing from ¾ of a grain to 1½ of the solid extract, of which 5 may be taken daily, also in the form of the fluid extract, combined with an equal quantity of fluid extract of ergot, in doses of from 30 to 40 drops, in a little water, five times a day. In cases of bronchorrhœa, no matter of what nature, he has found the action of hydrastis particularly favourable.

Dr. A. Goldhammer[7] has had such remarkable success with **Guaiacol** in many cases of cough of long standing in which no tuberculous element could be recognised, that he suggests its use in every case of cough of more than two weeks' duration.

He has found it of decided value in cases of chronic bronchitis with or without asthma. In the chronic coughs of children guaiacol has proved especially beneficial. He has employed it even in several cases of whooping-cough with astonishing results. The paroxysms were rendered less severe and less numerous, and the duration of the attack was cut short to two or three weeks. For children of a delicate temperament, who have a poor appetite and who occasionally have a slight cough, guaiacol is a very valuable remedy. It stops the cough entirely in a short time, increases the appetite, and causes the patient to gain flesh.

As regards the administration of guaiacol, it is very well borne in the majority of cases, if well diluted with milk, although it has a nasty taste. It very seldom deranges the digestion. Those who cannot bear its odour or taste can easily take it in capsules. Dr. Goldhammer usually begins by giving 5 drops three times a day, in milk, to an adult. The dose may then be increased 1 drop daily up to 15 drops three times a day. A child one year old can take 2 drops at a dose to start with, and then the dose may be increased slowly to 4 or 5 drops.

REFERENCES.—[1] "Med. Record," June 12, 1897; [2] "Med. Age," July 20, 1897; [3] "New York Med. Journ.," Sept. 25, 1897; [4] "Med. Record," Oct. 9, 1897; [5] "New York Med. Journ.," Jan. 22, 1898; [6] Ibid.; [7] "Med. Record," Oct. 27, 1897.

CRETINISM (Sporadic). *Henry Dwight Chapin, M.D., New York.*

Dr. William Osler[1] reports upon sixty cases occurring in America. The stunted stature, the semi-bestial aspect, the blubber lips, "retroussé" nose, sunken at the root, the wide-open mouth, the lolling tongue, the small eyes half closed with swoollen lids, the stolid, expressionless face, the squat figure, the muddy, dry skin, combine to make a picture of what has been well termed the "pariah of nature."

The author usually begins treatment with 1 grain of the **Desiccated Thyroid Gland** three times a day in young cretins. Its effects should be carefully watched, and the amount reduced if the pulse becomes more rapid, or if there is fever. Older patients may take as much as 5 grains in the day, and the amount may be increased or diminished, as the symptoms indicate. Young patients bear the remedy very well, and in a few months, if no improvement is noted, larger doses must be tried. Unpleasant effects are less commonly seen than in the myxœdema of adults.

After the disappearance of the myxœdema and the establishment of the processes of growth and development, a very moderate dose seems sufficient, 1 or 2 five-grain tablets a week. Intermission for a month or six weeks does not seem to be followed by any striking change, but an intermission for a longer time is followed by symptoms indicating a relapse. In one case the treatment was interrupted for two months, and the child became very languid and apathetic, and improved at once when the use of the extract was renewed.

Dr. Henry Koplik[2] considers the results of *thyroid therapy* in sporadic cretinism. If the cases are obtained early, before the disease has stultified the brain and general nervous system, our results will apparently reach the greatest perfection. It is imperative, therefore, to try to make an early diagnosis, and not wait until the disease has caused marked inroads. In the first class of cases the results are most promising. In the second class, infants and children below the age of five years, and especially below the age of two, the results are varying.

Dr. Dobrowsky[3] describes his observations in the treatment of thirty children with **Thyroid Extract.** Nine were cases of goitre, eight of prurigo, one of obesity, and twelve of idiocy or cretinism. To those less than two years old, ½ to 1 tablet of Merck's thyroidine

was given daily during the first week, and 1 to 2 tablets a day thereafter. Old children began with 1 to 2 tablets daily, and later took 3 or 4, for three weeks at least, and often for three or four months. Each tablet contained 35 centigrammes of thyroidine.

Contrary to the very encouraging experience of many other observers, Dobrowsky obtained practically no effects in cretins.

During this treatment the blood showed no modification in its composition, but all the cases exhibited a tachycardia without palpitation or dyspnœa, which lasted during all the period of treatment. Diuresis, as well as thirst, was increased. The urine contained a considerable increase of phosphates, and often notable quantities of indican, but no albumin or sugar.

REFERENCES.—[1] "Amer. Journ. Med. Sci.," vol. cxiv., No. 4, 1897; [2] "New York Med. Journ.," July 16, 1898; [3] "Archiv f. Kinderh.," Band xxi., S. 54.

CROUP (Spasmodic). *Henry Dwight Chapin, M.D., New York.*

Dr. Marshall[1] advises **Nitro-glycerin** as an ideal remedy for spasmodic croup where steam inhalations and emetics fail. It is to be given in small doses frequently repeated. To children from five to ten months old he gives from $\frac{1}{1000}$ to $\frac{1}{600}$ grain, repeated in from five to ten minutes if no effect is noticeable. Usually in ten minutes there is marked relief in the dyspnœa and general appearance of the child. By repeating these small doses from every fifteen minutes to once in one to three hours, the laryngeal spasms are controlled.

REFERENCE.—[1] "Atlantic Med. Weekly," May 28, 1898.

CYSTITIS. *Prof. R. Saundby, M.D., LL.D., F.R.C.P.*

Urotropin, which was originally used to dissolve calculi, has been found by Citron[1] to be very beneficial in cystitis, given in doses of from 5 to 15 grains. It apparently acts by forming formaldehyde, which is a powerful antiseptic. This chemical change depends upon the acidity of the urine, and will not take place in neutral or alkaline urine.

REFERENCE.—[1] "Monatsh. d. Krankh. des Harn u. Sex. Apparat.," Heft 2, 1898.

CYSTOCELE. *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Recognising the fact that in the treatment of cystocele colporrhaphy and allied operations often fail, Lowson[1] set himself to consider how the bladder itself might be raised and kept in position. He concluded that the urachus was untrustworthy, and turned his attention to the hypogastric cords. He used them in nine cases; in six the operation was successful and the ultimate result good. In one there was a

moderate recurrence of cystocele; in another there was only one hypogastric cord strong enough to make use of; and in the last neither cord could be found. He consequently abandoned this method, as it was based on structures liable to so much anatomical uncertainty.

He then tried a plan by means of a peritoneal flap, performed as follows: After the usual incision through skin, fascia, and rectus, the sides of the wound are well separated, and the hypogastrics looked for and defined. Midway between the pubes and umbilicus the peritoneum is divided transversely for about 1½ inch, the mid-point of the incision corresponding with the middle line (1—2, *Fig.* 15). From each end of this incision the peritoneum is divided with a pair of scissors downward and outward toward the sides of the bladder (1—3 and 2—4), just outside the cords. (The flap thus formed is attached to the back of the bladder, and includes the hypogastrics and the urachus.) By dragging on this flap the bladder is drawn upwards, and is retained in position by sutures passing through the flap, recti muscles, and fascia. In this way one is independent of the hypogastric cords, though, if present, they help to strengthen the flap.

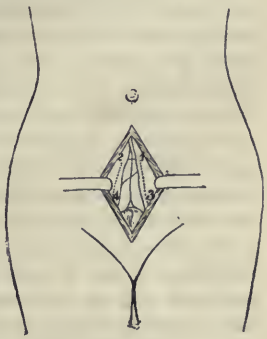


Fig. 15.

Flap Operation with Separation of the Bladder in Front.—The flap operation proved, on the whole, successful, but in three cases out of fourteen the cystocele was not completely reduced. It was evident that more elevation was required. With this object in view he has in subsequent cases passed the hand behind the pubes, and completely separated the bladder in front and laterally. After this the bladder can be well drawn into the wound, and fixed at whatever level is considered advisable.

Of twenty-five cases operated upon by the last method, the results were entirely satisfactory in nineteen.

Among new methods of colporrhaphy is one suggested by Marsi.[2] A longitudinal incision is carried through the mucous and submucous layers of the anterior vaginal wall, from the anterior fornix to the lower end of the urethra. At each end of this incision a small transverse one is made on either side, and the two lateral flaps thus marked out are dissected off. Interrupted sutures of catgut are passed through the base of the right hand flap, beneath the median raw surface,

emerging at the base of the opposite flap. The flaps are then replaced over the first line of sutures, and their opposite edges are united by a continuous suture of catgut. The result is not only the removal of redundant tissue, but the formation of a new supporting column in the median line of the anterior vaginal wall.

To prevent the vaginal prolapse which often follows hysterectomy for aggravated procidentia of the uterus, Delbet[3] adopts the following plan: A median longitudinal incision is carried from the junction of the cervix and vagina to a point just above the meatus. A second incision is carried around the cervix anteriorly. Two triangular flaps are dissected off on either side, including the entire thickness of the vaginal wall. Hysterectomy is then performed in the usual manner, with ligatures, but care is taken not to include the round ligaments in the latter. The ligaments are divided and their distal ends are drawn down into the vagina, where they are sutured in the vaginal wound, which is closed. The round ligaments thus form a sort of girth which passes under the bladder and ureters, and the anterior vaginal wall is strengthened, the result being even better than that obtained by colporrhaphy, and without the removal of any tissue.

For treating uncomplicated cystocele, Routh[4] thinks that the best plan is to make a longitudinal incision along the anterior vaginal wall and strip off the bladder, as is done in anterior colpotomy. Two loose folds of vaginal tissue result, which can be everted and, instead of being cut off, raised up into a vertical ridge, by suturing it to a piece of perforated celluloid, prepared beforehand. A rigid wall is thus formed.

This does not give way like the cicatrices in colporrhaphy, but really seems to be a better groundwork to resist further pressure.

If there is retroversion with prolapse of the uterus, as there very often is with a cystocele, he believes that there is no operation which answers so well as the comparatively new one of anterior colpotomy with vaginal fixation of the uterus. The incision is made transversely in the front of the cervix as in vaginal hysterectomy, and another incision is made longitudinally along the anterior vaginal roof, as far forwards as the neck of the bladder. The bladder is then stripped off the anterior vaginal wall, and off the front of the uterus, and is pushed up behind and above the pubes. The anterior pouch of the peritoneum is opened, and the uterus is anteverted from its retroverted position, and sutured to the vaginal walls along the longitudinal incision, after all redundant tissue has been removed.

REFERENCES.—[1] "Brit. Med. Journ.," July 23, 1898; [2] "Amer. Journ. Med. Sci.," Jan., 1898; [3] "Gaz. des hôp.," Jan. 19, 1897; [4] "Clinical Journ.," Jan. 26, 1898.

DACRYOCYSTITIS. (See "Lachrymal Apparatus.")

DENGUE FEVER. *David Hardie, M.D., Brisbane.*

This is practically a new disease in Queensland. It had been observed occasionally in the North, and to a less extent in the South for three or four years, and culminated in an epidemic last summer, in which probably not more than 10 to 30 per cent. of the population escaped the disease. The most usual symptoms were severe frontal headache, backache, pains in the limbs, vomiting, a variable rash, a temperature for some days varying from 101° to 105°, and severe general prostration. There may also be bleeding from the gums, nose, and stomach, and amongst females, menorrhagia and a tendency to abortion. There was at first some doubt in the mind of medical men whether the epidemic was dengue, as some cases presented the appearance of measles, others of scarlet fever, and others again of influenza. This doubt was, however, soon dispelled.

Dr. Hawkes[1] says the most striking feature of the disease was its variability. He divided the cases into four divisions, according to the duration of the fever. Dr. Hare[2] recognises two main types, the remittent and the intermittent, the former being by far the more common. In the former class the temperature does not fall to normal till the fifth day; in the latter the temperature is normal on the third and fourth day, rises rapidly on the fifth, and then suddenly falls. The fever leaves the patient exceedingly prostrate, and as sequelæ we may have pleurisy, jaundice, boils, peripheral neuritis, and melancholia.

Apart from the usual dislocation of trade attending such a widespread epidemic, the disease is by no means non-fatal. Dr. Hare has collected some accounts of sixty fatal cases, the majority of them dying from rapid heart failure and collapse, at the period of crisis. "These cases are amongst the most startling that occur in medical practice. It not unfrequently happens that the child has an appearance of well-being, speaking with a loud, firm voice and exhibiting remarkable power and mental clearance, even when the surface of the body is cold and the pulse has quite disappeared from the wrist. One girl of seven was sitting up in bed and talking quite comfortably half an hour before death."

With regard to the nature of the epidemic, Dr. Hare thinks there is some analogy between dengue fever and malaria and in this connection states, that Dr. Hunt examined the fresh blood in thirty or forty cases and constantly found actively mobile granules mainly in the serum, similar to those he had found in two cases of malaria.

REFERENCES.—[1] "Intercol. Med. Journ.," July, 1897; [2] "Austral. Med. Gaz.," March, 1898.

DERMATONEUROSES. *T. Colcott Fox, M.B.*

In two very clear and interesting clinical lectures, T. D. Savill[1] deals with the *Dermatoneuroses* from a clinical point of view. He starts with the questions, Does the nervous system produce morbid effects in the skin? and secondly, if so, What are the effects produced, and what lesions produce them? The questions he answers by the examination and demonstration of various cases, which he groups into (*a*,) Those in which the lesion is situated *in the course of a peripheral nerve* (*sensory or mixed*); (*b*,) Those where the lesion is probably situated *in the central nervous system* (*brain or cord*); (*c*,) Those where the lesion is to be found *at the end* of a centripetal or sensory nerve; and finally, (*d*,) Those in which the mischief is located in some part of the *sympathetic nervous system*. Two facts have to be kept clearly in view, viz., that nerve lesions may be either *destructive* or *irritative*; and that the effect on the skin may be produced either in a *direct* manner by a centrifugal nerve impulse passing directly from the point of disease to the skin, or by a *reflex* method in which the nerve influence goes first to some centre, from which it is afterwards reflected to the skin.

(*a*,) *Lesions of the Peripheral Nerve* (*sensory or mixed*).—Savill discussed a case in which the median nerve was divided, in which imperfect attempts at repair took place with some neuritis, and in which, finally, the ends of the nerve were soundly united by operation. From the symptoms it was demonstrated that nerve lesions can produce effects on the skin, and that a lesion of the same peripheral nerve, and in the same place, may be attended by very different symptoms, according to whether it is destructive or irritative in its kind. Whilst the lesion was of a destructive or paralytic nature, it was attended by *smoothness* and shininess of skin, and with atrophy; and secondly, that the irritative lesion produced crops of *vesicles* as long as the irritation continued, together with a *wrinkled* condition of the skin in the area of the distribution of the nerve. In both stages redness and perspiration were noticed, though more in the irritative stage, and this Savill takes to be due to a loss of central control over the vaso-motor nerves. A case of *hemiatrophia facialis*, dating from an injury to the head, and evidently due to a *paralytic* lesion of the trunk of the fifth nerve, displayed atrophy of the subcutaneous tissue and thinning, with a smooth, glossy appearance of skin over the left side of the face, with complete loss of hair over the inner two-thirds of the left eyebrow and the anterior third of the left side of the scalp. There was also some weakness and wasting of the muscles of mastication on the left side. Contrasting with this case was one of a woman who

had suffered from a severe attack of herpes zoster of the left ophthalmic division of the fifth nerve with panophthalmitis of the left eye three years previously. Since then she had suffered from severe neuralgia of the part. A slight redness was to be seen but no atrophy. In this connection the association of neuralgia with whitening and loss of hair was noted.

Thus an actual gross lesion of a peripheral sensory, or mixed nerve, produces, in course of time, skin symptoms of a most pronounced kind. A destructive lesion will produce glossy skin ; and also if the lesion be severe and last long enough, extensive atrophy of the skin and its appendages. An irritative lesion in the same position will produce, though apparently in a shorter time, the opposite condition, viz., wrinkled or rough skin in the whole area of distribution; and vesicles will often appear in some parts of the area supplied by the irritated nerve, associated with neuralgia and tenderness along the course of the nerve. Lesions of purely motor nerves are unattended by these symptoms ; but in the case of a *mixed* nerve both destructive and irritative lesions may be attended by atrophic flaccid paralysis of the muscles.

Savill says there is some reason to believe that lesions situated in the spinal cell of origin or any part of the course of a nerve are attended by these same symptoms. Further, it is probable that irritative lesions situated in the spinal ganglion or the posterior horn of grey matter, which contains the nerve cells of origin (neuron-bodies) of the sensory nerves, will give rise to symptoms the same in kind but of greater severity and definiteness than when the lesion is situated in the course of the nerve (neuraxon). The perforating ulcers and some other trophic lesions in tabes dorsalis are probably of this nature.

(*b*,) *Lesions in the Central Nervous System.*—There are few facts to rely on regarding lesions of the *brain.* Here are included the bed sores and trophic lesions occurring on the paralysed side in hemiplegia, which are more apt to form when sensation is affected as well as motion ; also Charcot's "œdème bleu," cases of various skin lesions, symmetrically distributed, believed to be of an hysterical nature. The skin affections, due apparently to functional nervous derangements, present the following features in common : (1,) Symmetrical and bilateral distribution, unless some local determining cause existed ; (2,) They mostly take the form of some variety of erythematous or vaso-motor condition, sometimes accompanied by vesicular manifestation, and sometimes, though less commonly, going on to actual necrosis ; (3,) They are unattended by acute pain, atrophy, or

any other of the symptoms referred to under peripheral nerve-lesions; though they may give rise to pricking, itching, formication, etc., and disagreeable somatic sensations; (4,) They are accompanied by other distinctly neurotic or hysterical manifestations of a general kind, such as flushing, and shivering, "fainting," etc. It is thus through the sympathetic system that central, cerebral lesions of a functional kind, and probably also central organic lesions, affect the skin.

There are some more definite facts, perhaps, in relation to *spinal cord disease*, as evidenced by the skin lesions occurring in syringomyelia. Savill thinks the form of sclerodermia affecting chiefly or solely the ends of the limbs have a similar association. However likely, as regards the skin, the distinction between the effects of destructive and irritative lesions of the cord and brain we are not in a position to differentiate between them.

(*c*,) *Lesions at the end of a Centripetal or Sensory Nerve* must travel centripetally, and they will become manifest either (1,) Centrally (in the form of some subject sensation, such as itching); or (2,) Reflexly, and be made manifest in some distant part of the skin.

A destructive lesion will necessarily cause anæsthesia. Probably tabes dorsalis begins here, as it does in the muscle spindles (muscle-sense neurons).

Pruritus is the example of the effects of an irritative lesion of the end of a sensory nerve. Except when due to an inflammatory irritation of the sensory nerve endings in many eruptions pruritus, according to Savill, is due to a blood alteration. In the latter condition he finds **Calcium Chloride,** in large doses, gives relief (20 grains working up to 45 grains, thrice daily).

Reflex effects were illustrated by the case of a lady who suffered from pigmentation of the face and a wrinkled condition round the eyes and of the hands, probably due to a granular endometritis and small fibroma. The recognition of the position of the originating disease is greatly facilitated by the researches of Ross, Mackenzie, Thorburn, Head and others on the existence of "sensory areas" corresponding with segments of the cord and associated in a reflex manner with the different internal organs.

(*d*,) *Lesions of the Sympathetic Nervous System* constitute a difficult but fascinating study. This system possibly conducts trophic influences to the skin, but the effects of lesions are chiefly seen in vascular disturbances (vaso-motor conditions, or angio-neuroses). In this connection we must remember that every peripheral nerve contains vaso-constrictor fibres and vaso-dilators, the former being the most numerous and powerful. The effects have a close resemblance

PLATE II.

Dermographism.

to those brought about by central nerve lesions, but taking effect through the sympathetic system. The lecturer demonstrated a case of *Raynaud's disease*, and one of the allied *acro-paræsthesia* (not yet described in text-books). Acro-paræsthesia occurs chiefly in females, and is characterised by attacks of coldness and pins and needles in the extremities, with other curious and indescribable sensations in the hands, and less frequently in the feet. The attacks consist at first of a very transient stage of pallor, followed immediately by dilatation and congestion of parts. *Giant urticaria* or *Quincke's disease* is another example; so, too, *fugitive erythema of the face*, and *unilateral hyperidrosis*. All these vaso-motor cases possess in common a paroxysmal character; usually a symmetry of distribution; a stage, often very transient, of pallor followed by dilatation of the vessels; predilection for exposed parts, greater liability of females to attack, and these possess signs of a general nervous irritability.

(For Toxivasomotor dermatoneurotic conditions see "Dermographism.")

REFERENCE.—"Clin. Journ.," March, 1898.

DERMOGRAPHISM (or Toxivasomotor Dermatoneuroses).

T. Colcott Fox, M.B.

Under this heading Barthélemy, in 1893, published a study, illustrating the condition by seventeen plates. Dermographism is not at all uncommon. A writer in the "Strand Magazine," for October, 1897, made a popular article out of the subject, and reproduced some of Barthélemy's illustrations. We present our readers with a reproduction of a photograph *(Plate II)* of the arm in Dr. L. E. Stevenson's case. Barthélemy defines dermographism as "the aptitude of the integuments to keep (or preserve), very amplified and in a more or less lasting manner, tracings which are made on them." In the normal state a very intense and prolonged stimulus is necessary to produce such an effect, which even then is generally evanescent and little marked. In dermographism the slighest stimulus, with a pointed instrument or the nail, excites the change. It is met with in all degrees in different cases, in different parts of the body in the same cases, and it occurs as an epiphenomenon in many affections. Barthélemy, however, draws a distinction, but many will not agree with him, between factitious urticaria and dermographism. This observer says that the condition is due to a specially susceptible vaso-motor system, hereditary or acquired, and he believes that a toxic agent acts either on the peripheral vaso-motors or, probably, on the vaso-motor centres of the cord or bulb. Narcosis from chloroform does not affect its production, nor does the hemianæsthesia of hysterics.

TREATMENT.—Based on these theories Barthélemy says the first point is to increase and accentuate the elimination of toxic agents by stimulating the bowels, kidneys, liver and skin. Secondly, to reduce the formation of toxins to a minimum by correcting the digestive processes. He recommends 4 drops of **Hydrochloric Acid** at the end of each meal for fifteen days, followed by **Benzo-naphthol, Salol,** and **Bicarbonate of Soda** for fifteen days more. Thirdly, one ought to repair the waste of the organism and, especially, to place the nervous system in a state of the greatest resistance with elevated doses of **Strychnine** combined with bitter and digestive tonics, by insisting on perfect repose, and good hygiene, hydrotherapy, and suitable climatic resorts. In short, the curative means adopted are those habitually recommended against nervous depression, neurasthenia, especially of gastric origin, and against hysteria.

DIABETES. *Prof. R. Saundby, M.D., LL.D., F.R.C.P.*

The theory of diabetes has received an important contribution from Prof. Bouchard,[1] who has joined the supporters of the view that attributes glycosuria to diminished destruction of sugar in the body. His argument is mainly mathematical, that is to say, it contends that the quantity excreted is greater than could possibly be derived from the food, if we assume that the body is still capable of destroying a normal amount. He recognises the difficulty that the carbonic acid gas and oxygen excreted are normal in diabetes, and he admits that the excessive amount of urea points to increased rather than retarded nutrition, but he thinks this may be explained by an increased destruction of fat!

Hirschfeld[2] thinks that obese patients are always on the verge of glycosuria, especially when they eat too much and take too little exercise. It is easy in such persons to produce glycosuria, unless they have previously been undergoing anti-diabetic diet.

Moraczewski[3] finds that it is quite true that the diabetic organism does excrete a great excess of lime, and this is especially noticeable on anti-diabetic diet, which is poor in this mineral.

Laudenheimer[4] has studied the relation of diabetes to insanity, and has observed several cases in which insanity supervened when diabetes had existed for some years. It occurred almost exclusively in elderly persons, and generally in the form of maniacal outbursts, although in one case which recovered there was a marked resemblance to general paralysis. Transitory glycosuria occurs pretty frequently among the insane, and is generally associated with melancholia and the so-called "Délire de ruine." Less commonly the

patient is agitated, restless, sleepless, and querulous. In both these conditions, anti-diabetic diet has improved the mental condition.

Grube[5] has studied albuminuria as it occurs in diabetes. He finds it in the following cases: (1,) In severe diabetes preceding coma; (2,) From heart failure; (3,) From senile changes; (4,) Functional albuminuria probably depending upon hyperæmia; (5,) From chronic nephritis. Where there is much albuminuria he gives milk freely with mineral waters; he orders warm baths, and even rest in bed, and does all in his power to prevent irritation of the kidneys.

The relation of the pancreas to diabetes is now generally accepted, but all diseases of the pancreas are not associated with diabetes; in fact, it is rather the exception than the rule, so that any cases of this sort are interesting. Polyakoff[6] has recorded a case of pancreatic colic, which was attended by ravenous hunger and thirst, wasting, weakness, and glycosuria; under treatment the attacks passed off, and the patient gradually recovered his usual health.

Kolisch and Buber[7] have recorded the case of a woman whose general condition was quite good, and who did not suffer either hunger or thirst, but who always had glycosuria after taking food. There was no increase of sugar in the blood. They call this condition tachy-glycosuria, and they seek an explanation of it in an affection of the renal epithelium.

Krehl[8] has found among the Jena students that glycosuria is common after drinking beer, especially if this beer is taken in the morning and of the heavier kind. For example, after Bavarian beer it was met with in one out of eleven, but there was no direct relation between the quantity taken and the glycosuria; that is to say, those who drank most did not always present this symptom.

Yeast has been recommended in the treatment of diabetes by various writers. In one case reported by Combal the yeast was given in doses of a tablespoonful three times a day, and under this treatment, without any dietetic restrictions, the sugar fell to about a quarter of what it had been. According to Beylot,[9] it acts by destroying the sugar in the intestine, but cannot operate upon any form of sugar after it leaves the intestine. This action is favoured by the hydrochloric acid of the gastric juice. Another simple remedy[10] is a tablespoonful of **Linseed** boiled in a pint and a half of water until the quantity is reduced to a pint, this amount to be taken daily in three portions. It is noteworthy that this treatment *must* be combined with anti-diabetic diet.

Gilbert and Carnot[11] recommend rectal injections of **Liver Extract** by pounding and macerating 3 to 5½ ounces of fresh pig's liver for two

hours in 7½ ounces of water, at 95° to 100° F., and filtering through muslin. This quantity is usually well borne, but if not, it may be given in divided doses.

Every year new remedies are recommended for diabetes insipidus. Brachmann,[12] when giving **Amylene Hydrate** as a hypnotic in a dose of 50 grains, found that it reduced the quantity of urine from two hundred and fifty to one hundred ounces in six days; on the omission of the dose the symptoms returned.

Among other remedies for diabetes is **Glycerin**, acidulated with 2 to 4 grains of **Citric Acid**, given in gradually increasing doses from ½ to 1½ drachms, well diluted with water after each meal. This remedy is recommended by Davis, of Chicago, and although it is not new, he seems to have found it more efficacious than other observers have done.

Prof. Lépine[13] considers that the principal object of treatment in diabetes is to combat the tendency to excess of sugar in the blood. We may attain this by three means: (1,) By diminishing the quantity of carbo-hydrates in the diet; (2,) By favouring the increase of sugar destruction by muscular exercise, by drugs, etc.; and (3,) By diminishing the formation of sugar in the organism. He thinks that it is not enough to diminish the quantity of carbo-hydrates, but that it is also necessary to see that the patient does not eat an excessive amount of meat, as such diet is liable to cause the toxic dyscrasia called acetonæmia. He is even doubtful of the propriety of allowing an unlimited amount of fat, because of the possible conversion of some of it into sugar. He does not recommend that the whole of the carbo-hydrates should be withdrawn, but he does think that it is of great value to diminish the quantity of carbo-hydrates for a limited time in order to study the case, and because such abstinence seems to give the patient greater power of tolerance in the future. With respect to bread, he does not give any of the specially-prepared articles, but gives ordinary bread in quantity limited to the capacity of the patient; he thinks potatoes must be given in relation to the quantity of starch they contain. He also speaks favourably of fruits and green vegetables, which may be permitted in moderate quantities according to the capacity of each case. As a substitute for sugar, he permits, but does not recommend, saccharin, as it may cause gastric irritation. Dulcin, the rival of saccharin, he regards as not to be permitted, because he thinks it is not free from danger. The use of milk must be decided for each individual, but it is especially suitable for diabetes associated with albuminuria; he advises the use of fermented milk. He thinks the use of all alcohol should be carefully supervised,

and while sweet wines, etc., must of course be forbidden, all wines should be taken with great moderation.

Grube,[14] of Neuenahr, has published a useful little book upon the diet of diabetic patients, which not only discusses the subject from a scientific point of view, but gives a number of excellent cookery receipts, *e.g.* :—

Fish Salad.—Cold boiled or roast beef or veal, cut into dice, and some hours before required for table, covered with sauce made of cold, hard-boiled yolk of egg, rubbed up with vinegar, oil, mustard, parsley, pepper, and shredded onions ; the dish to be garnished with finely sliced pickled cucumber, anchovies, hard-boiled eggs, and lettuce.

Several modern writers, especially König and Kraus,[15] have drawn attention to the small quantity of carbo-hydrate contained in certain fruits, especially winter oranges, cranberries, and bilberries. Apples, pears, and peaches contain more sugar, but Kraus has shown that by stewing them two or three times, and pouring away the water after each stewing, a great deal of the sugar may be removed, and if they are then sweetened with saccharin and flavoured with cloves or cinnamon, they are very acceptable to diabetic patients.

REFERENCES.—[1] "Sem. méd.," No. 25, 1898 ; [2] "Berlin. klin. Woch.," No. 10, 1898 ; [3] "Centralbl. f. inn. Med.," No. 36, 1897 ; [4] "Berlin. klin. Woch.," Nos. 21, 22, 23, and 24, 1898 ; [5] Ibid., No. 11, 1898 ; [6] "Wien. klin. Woch.," No. 23, 1898 ; [7] "Centralbl. f. inn. Med.," No. 40, 1897 ; [8] "Revue des Sciences méd.," July, 1897 ; [9] "Arzn. Rundschau.," vol. vii., p. 182 ; [10] "Sem. méd.," May 10, 1897 ; [11] "Therap. Monats.," Heft xii., s. 641 ; [12] "Sem. méd.," No. 40, 1898 ; [13] Ibid., No. 50, 1893 ; [14] "Die diaetet. Behandl. d. Zuckerkrankh. Bonn.," 1898 ; [15] "Zeitschr. f. diaetet. u. physikal. Therapie.," Band 1, Heft 1, 1898.

DIABETES (Refractive Changes in). (See "Vision, Disorders of.")

DIARRHŒA AND INDIGESTION OF CHILDREN.

Henry Dwight Chapin, M.D., New York.

Dr. H. Aylmer Dumat[1] has treated persistent vomiting in infants by first washing out the stomach with an antiseptic, and then giving a simple anodyne to soothe the congestion which is likely to be left behind in the gastric mucous membrane. He has lately employed a solution of **Lactic Acid** of the strength of 1 in 240 for infants. The drug is mixed with glycerin in the proportion of 4 minims of the acid to 1 drachm of the glycerin, and the nurse is instructed to mix a drachm of this solution with 15 drachms of water. This can be flavoured with orange-flower or peppermint water. Thirst being a prominent symptom, the child readily swallows the two ounces of

fluid, and promptly brings up most or all of it, along with a quantity of mucus. The dose is to be repeated within an hour or two. It is again thrown up, in all probability, but this time the washings are not so dirty; and the third and fourth times the washings, if they come up at all, are clean.

Dr. Comby[2] calls attention to the frequency of dilatation of the stomach in infants. The normal capacity of a child's stomach during the first two years is as follows:—

At birth—30 to 40 c.c. (8 to 10 fl. dr.).

At one month—60 c.c. (15 fl. dr.).

At two to three months—80 to 100 c.c. (20 to 25 fl. dr.).

At three to six months—120 to 150 c.c. (4 to 5 fl. oz.).

At six to twelve months—200 to 220 c.c. (6½ to 7 fl. oz.).

At one to two years—300 to 350 c.c. (10 to 12 fl. oz.).

The measurements of stomachs of children who were artificially fed or suffered with gastro-enteritis, showed much dilatation. The best treatment of this condition is lavage of the stomach.

Dr. Th. Zangger[3] has found that **Creasote** in small doses exerts a favourable action in cases of infantile gastro-enteritis and various dyspeptic conditions. He employs the following formula:—

℞ Beechwood Creasote	gtt. 3	Syrup	gm. 30
Alcohol	gm. 1	Orange-flower Water	gm. 10
Gum Arabic Powder	gm. 10	Water	to make gm. 100

Dose—A teaspoonful for children, or a tablespoonful for adults, immediately before each meal.

Dr. Chaunier[4] has given **Beta-naphthol-bismuth** as an intestinal antiseptic in all the forms of diarrhœa in children. The diet was not changed in many cases. In a few it was combined with ¼ to ½ drop of tincture opii. There is no danger attached to the use of this drug during the first months of life, from 2 to 3 grammes being given daily in solution in syrup or honey.

Dr. Chas. Douglas[5] reaches the following conclusions in reference to infants' stools and their significance: (1,) Green stools are never healthy stools; (2,) They show imperfect digestion always; (3,) In direct proportion with their presence is the damage and danger to the child; (4,) These stools render children more susceptible to acute gastro-enteritis in hot weather; (5,) The high infantile summer mortality follows children suffering from this coloured stool; (6,) Through unhealthy nutrition the blood is poisoned, and the various tissues improperly nourished; (7,) The excreting organs, particularly the kidneys and liver, are frequently damaged by the extraordinary duties imposed on them in eliminating these poisonous results from the

blood; (8,) This continued irritation and innutrition favours the development of inherited diathesis and acquired cachexias; (9,) No child is free from complications dangerous to life, or from development errors, who suffers from frequently recurring green-shaded stools, particularly the very liquid and foul-smelling ones.

Dr. Mercier[6] advises the use of boiled water, borated water, or physiological salt solution, in **Enteroclysis.** In the case of newly-born babies, half a litre of fluid should be injected at a time. Should the stools be very fœtid, a saturated solution of naphthol is valuable. Enteroclysis with starch water is indicated when the large intestine is in an inflammatory condition.

REFERENCES.—[1] "South African Med. Journ.," Aug. 1897; [2] "La méd. Mod.," No. 50, 1897; [3] "Sem. méd," xvii., 1897; [4] "Jahrbuch, f. Kinderh.," Band xliv., H. iii., iv., 1897; [5] "Phys. and Surg.," vol. xix., No. 10, 1897; [6] "Thèse de Paris," 1897.

DIGESTION (Disorders of). (See also "Stomach, Diseases of.")

W. Soltau Fenwick, M.D., M.R.C.P.

PHYSIOLOGY: *Metabolism in Total Resection of the Stomach.*—Hoffmann[1] has investigated the metabolism in Schlatter's well-known case of total resection of the stomach. Six and a half months after the operation the patient had gained 5·4 kilog. in weight. It was found that the amount of nitrogen present in the stools varied within normal limits, but during the six days a complete nitrogenous balance was not obtained as occurs in health. There was a retention of from 0·1 grm. to 1·4 grms. of nitrogen. This retention is known to occur in convalescence from acute illnesses, etc. There was no increase in weight during the first period of observation. A month and a half later a further investigation was made with a more varied diet, and here the absence of the stomach seemed of no importance. A nitrogenous balance could now be established, showing that the regeneration of the blood was so far complete that there was no longer any need of retention of nitrogen. The retention of phosphorus was also marked. Hoffmann found that fatty matters were satisfactorily dealt with, so that of 8·5 gms. taken only 4·5 gms. were excreted. He adds that this shows how incorrect it is to treat patients suffering from chronic stomach disorders with as little food as possible. The author has also investigated the question of the action of hydrochloric acid upon putrefactive processes, and he concludes that the absence of the acid in this case was without influence upon these putrefactive processes in the alimentary canal. He goes so far as to add that the administration of hydrochloric acid as a disinfectant of the intestinal contents is useless. As regards the

quantity of chlorides in the urine, there was no decrease after the chief meal in this case. This confirms the current view that the diminution of the chlorides in the urine after a meal is due to the hydrochloric acid excreted by the stomach. The absolute acidity of the urine was higher in this case than in ordinary individuals. The retention of sodic chloride was striking, without there being any increase in the body-weight. There was no relationship between the excretion of chlorides and the acidity of the urine in the different periods of the day. The urine was examined for the presence of pepsin, but no trace was found.

The influence of Iron on the secretion of the Gastric Juice.—Buzdygau [2] has sought an experimental solution of the question why all chlorotic and anæmic patients do not bear **Iron** equally well, and why in some cases the metal gives rise to so much gastric disturbance as to render its use impossible. He compared the digestive powers of the stomach in a large number of cases before and after the administration of iron. The author concludes that in cases in which the gastric contents are already too acid during digestion iron accentuates the hyperacidity of the gastric juice, and aggravates the dyspeptic symptoms which are usually present in anæmia and chlorosis. In these cases the digestive affections must be set right before iron is administered. In cases, however, in which the secretion of HCl is normal or diminished, iron may often do good service in stimulating the gastric mucous membrane to secretion. All the experiments tend to show the value, indeed the necessity, of ascertaining the condition of the stomach before prescribing iron.

Physiological action of Massage on Glandular secretion.—Colombo [3] experimenting on dogs with gastric and biliary fistulæ, has estimated the effect of **Massage** on the amount and quality of the gastric juice, bile, and renal secretion. He found that as regards the gastric juice the quantity which came through the fistula in the space of two hours was more than double that which flowed without massage. Massage for five minutes made no difference, but when continued for fifteen minutes the secretion reached its maximum ; if continued longer the amount remained about the same, but the quality was poorer. As regards the bile the best results were obtained by ten minutes' percussion followed by ten minutes' friction and kneading. Ten minutes' abdominal massage also increased the amount of urine ; slight traces of albumin were observed in the first few minutes after massage, but this was only transitory. In each case the watery part of the secretion was increased out of proportion to the specific elements. This suggests that the observed increase is largely due to

a greater flow of blood and better filtration in the various organs concerned.

Albuminuria in Dyspepsia.—According to Robin,[4] albuminuria which manifests itself in the course of dyspepsia presents peculiar characteristics which permit its diagnosis not only from Bright's disease but also from other functional albuminurias. The patients in whom this variety of albuminuria is encountered are affected with gastric hyperæsthesia, variable distension of the stomach, increase in the volume of the liver, constipation, and fæcal accumulation in the bowel. They complain of a sensation of weakness and fatigue; they are thin and have vertigo, but never present œdema. If we examine their urine we find sometimes an irregular albuminuria and sometimes a continuous and permanent albuminuria. This undergoes considerable variation according to the diet of the patient. The albumin is composed of serum without globulin. As to the urine, it never contains tubular casts, but a certain quantity of indican and crystals of oxlate of calcium are found. The state of nutrition and the organic and respiratory changes will furnish other signs which will aid in differentiating dyspeptic albuminuria from other varieties.

Alimentary albuminuria can be cured when it is properly treated in the beginning, that is, when it exists only in an intermittent form. When it becomes continuous, it is cured only in from 30 to 35 per cent. of instances. The treatment is extremely simple and ought to be based, during the first stage at least, on the state of the digestive tract. Diet forms the prime element of treatment and varies with each case; if there is less albumin with animal diet than with vegetable, animal diet should be prescribed, and *vice versâ*. The diet should be mixed if it is found that there is less albumin under such conditions. It is almost useless to call attention to the fact that it is nearly always necessary to have recourse to a **Milk Diet.**. This should be suspended if the patient begins to grow thin.

Hyperacidity.—Roux[5] arrives at the following conclusions with respect to those several forms of dyspepsia which are classed under the term of Reichmann's disease: (1,) It is better to call this disease the "syndrome" of Reichmann, than Reichmann's disease; (2,) It is an exaggeration to look upon this "syndrome" as being in all cases a clinical sign of motor insufficiency of the stomach, due almost entirely to an incomplete organic stenosis of the pylorus or duodenum; (3,) In most cases the secretory activity of the gastric mucous membrane is increased; even before hypersecretion occurs, excess of hydrochloric acid can be detected; (4,) A positive diagnosis of the "syndrome" can only be made when the stomach contents contain a large excess of

hydrochloric acid after a test meal taken on an empty stomach, in addition to the presence of active gastric juice in the stomach before breakfast; (5,) Intermediate forms between simple hyperacidity and hyperacidity combined with hypersecretion can be demonstrated; (6,) There is no doubt, however, that stasis of the stomach contents plays an important rôle in the development of the symptoms, but that it is not alone sufficient to cause the "syndrome," although removal of the contents through the stomach tube causes great temporary relief.

Paroxysmal Hyperacidity.—Soltau Fenwick [6] draws attention to a form of intermittent hyperacidity in children associated with the symptoms of migraine.

The disorder may commence at any period of childhood, but is most common between the ages of four and ten. Mental and physical fatigue are the chief conditions which induce an attack, although over-indulgence in sweets or prolonged excitement are sometimes responsible for its development. An attack begins with violent headache either in the early morning or after the midday meal, and the pain is often so intense as to simulate that of meningitis. After an hour or two the child complains of a burning pain in the epigastrium, which is accompanied by gaseous distension of the stomach and intestines and by acid eructations. Eventually vomiting takes place, with the result that the abdominal pain and headache rapidly subside. In severe cases retching and vomiting persist for several hours. The administration of a tumblerful of hot water at the commencement of an attack will often relieve the headache and cut short the other symptoms of the disorder. The vomit is greenish-yellow in colour, and contains from 0·3 to 0·5 per cent. of free hydrochloric acid. The principal disease from which this disorder has to be distinguished is ordinary recurrent catarrh of the stomach, but in this latter complaint vomiting is excessive, and the ejecta contain no free acid.

With regard to treatment, the meals should be taken at regular intervals and all fatty and saccharine articles excluded from the dietary. If the bowels are confined they should be regulated by means of some simple laxative, such as the confection of **Senna** and **Sulphur, Cascara,** or syrup of senna.

At the commencement of an attack the child should be put to bed and the room be darkened. In many cases an emetic of **Ipecacuanha Wine** or **Sulphate of Zinc** relieves the headache more quickly than anything else. Occasionally a full dose of **Antipyrin** or **Phenacetin** will cut short an attack, if administered at its commencement. If vomiting has already taken place lavage of the stomach can be promoted by making the patient drink warm water containing a

small quantity of **Bicarbonate of Sodium** and afterwards exciting vomiting by tickling the back of the throat. The employment of the stomach-tube for this purpose is never required. In those cases where catarrh of the stomach ensues from the irritant effects of the acid secretion and the child continues to retch for many hours, an **Enema of Chloral** and **Bromide of Potassium** may be administered. Among the various remedies which have been tried for the purpose of preventing a recurrence of the disease **Bromide of Potassium** combined with **Liquor Potassæ** has proved of the greatest value.

Achylia Gastrica and Chronic Diarrhœa.—Jones[7] says that the hurried passage of food through the digestive tract is an insufficient explanation of lienteric diarrhœa. The normal gastric secretion prevents this hurried passage by comminuting the food, and thus rendering it less irritating to the bowel, and by giving a stimulus to pyloric contraction, and preventing too early escape of the stomach contents. In achylia gastrica these effects of the secretion are absent. The result is often more severe intestinal symptoms than gastric as a result of precipitate expulsion of food, with irritation or overwork of the intestine from the development of toxic substances and coincident inflammation of the intestine. Constipation and diarrhœa may alternate, or the latter may be inconstant. The treatment consists in the frequent administration of large doses of **Hydrochloric Acid** with **Pepsin**; small doses of **Tincture of Iron** or of **Fowler's Solution** before meals; intra-gastric **Faradisation**; and control of intestinal putrefaction by **Calomel.**

Dyspepsia due to undetected Hernias.—Kuttner[8] suggests that, in the absence of abnormalities on the part of the stomach itself, we have been too ready to diagnosticate neuroses. More attention should be paid to the condition of the other organs. Hernia is particularly important, and Kuttner in this connection calls especial attention to hernia in the linea alba. These are often very small, varying in size from a pea to a walnut, usually above the navel, may be multiple, and occur generally in men from twenty to fifty years. All the author's twelve cases were among the working-classes. They are most apt to contain only subperitoneal fat, but may consist of omentum or intestine. The symptoms are very various. There may be no disturbance at all, or the symptoms may come on suddenly and be most severe. In the typical case there is colicky pain, increased by pressure, radiating toward the shoulder, or giving the girdle-sensation; there are generally recurring attacks of pain and vomiting. A diagnosis must be made from gastric ulcer, gastrectasis, gastralgia, gall-stone, renal colic, etc. This is aided by the presence of the tumour,

the great local tenderness, and sometimes, if the hernia contains gut, by Litten's symptom, a sensation as if peas were thrown or water spurted against the palpating fingers when the patient coughs. The author has very little confidence in palliative treatment, and thinks that all hernias in the linea alba causing symptoms should be operated upon. The results of such operations have been, upon the whole, quite satisfactory.

THERAPEUTICS: *Gastric and Intestinal Antiseptics.*—Riegner[9] first refers to the various views held as to the possibility of disinfecting the contents of the alimentary canal. He has himself continued the experiments of Strauss upon gastro-intestinal antiseptics. Stomach and intestinal contents were placed in graduated tubes, and grape sugar in equal amounts added. The antiseptic was then added in known quantity in watery or alcoholic solution, and more rarely in powder form when not soluble.

The author gives details of a number of experiments. As regards gastric antiseptics, he concludes that sodic salicylate $\frac{1}{8}$ per 1,000, menthol $\frac{1}{2}$ to 2 per 1,000, and thymol $\frac{1}{8}$ to $\frac{1}{2}$ per 1,000, have relatively high disinfecting powers. A medium disinfectant action is possessed by chinosol, chloral hydrate, soluble silver, and actol, and only a slight one by even large doses of steriform and ichthyol. As regards intestinal antiseptics, chinosol and thymol arrest fermentation in $\frac{1}{2}$ per cent. solution, and delay it in $\frac{1}{8}$ per cent. Actol, bismuth salicylate, or bismuth β-naphthol arrest it in 1 per cent., and delay it in $\frac{1}{4}$ per cent. Resorcin, chloral hydrate, silver, benzo-naphthol, and steriform are inferior to the agents above-mentioned.

From experiments it becomes obvious that antiseptics behave differently in relation to the stomach and intestine. Thus menthol is an excellent gastric, but an inferior intestinal, antiseptic. These questions cannot be definitely settled by laboratory experiments, but must be determined by practice. Thus a disinfectant is useless if too poisonous. Again, a gastro-intestinal antiseptic must be insoluble. This insolubility is also a guarantee against intoxication. Extensive contact with the intestinal contents is desirable, and hence the antiseptic should be given in frequent and small doses. In motor insufficiency of the stomach salicylic acid, menthol, and thymol have been shown to be of clinical value by Strauss. Among intestinal antiseptics Strauss has shown menthol to be worthy of recommendation. Thymol is inferior to menthol, and must be given on a full stomach to avoid irritation. Actol must be given in capsules or pills, which are not soluble in the stomach. Both bismuth salicylate and bismuth β-naphthol are worth trying in flatulency. Sodic salicylate

and chinosol are too soluble. Washing out the stomach and bowel is an important measure. Salicylic acid, menthol 0·25 grm. thymol 0·1 grm. may be added to nutrient enemata. The author comes to the conclusion that these antiseptic agents have a practical if somewhat restricted value.

Taka-diastase in Dyspepsia.—Friedenwald [10] draws the following conclusions from his experiments concerning the value of taka-diastase in various disorders of the stomach :—

(1,) That taka-diastase exerts no influence under normal conditions upon gastric digestion nor upon cases of nervous dyspepsia with normal motor and secretory functions.

(2,) That in cases of motor disturbances of the stomach with normal secretory functions, such as atony, taka-diastase increases the motor action without in any way influencing the secretory function or the digestion of starches.

(3,) That in cases of subacidity taka-diastase acts differently, according to whether there is a catarrh or a nervous dyspepsia. In nervous cases it has no effect whatever upon digestion, while in cases of catarrh it appears to have a tendency to increase the flow of acid and promote the digestion of starches.

(4,) That taka-diastase exerts its most favourable influence in cases of superacidity. It not only promotes the digestion of starches in these cases but diminishes the excess of acid and increases the motor function.

(5,) That taka-diastase in a great measure replaces the saliva when this secretion is diminished or absent. It then not only digests the starches in the stomach, but serves the other function of the saliva in stimulating the gastric secretion and therefore promoting the proteid digestion.

REFERENCES.—[1] "Münch. med. Woch.," May 3, 1898 ; [2] "Wien. klin. Woch.," No. 31, 1897 ; [3] "Suppl. al. Policlin.," Oct. 30, 1897 ; [4] "Journ. d'accouch.," Aug. 22, 1897 ; [5] "Edin. Med. Journ.," April, 1898 ; [6] "Lancet," Jan. 8, 1898 ; [7] "Brit. Med. Journ.," July 9, 1898 ; [8] "Amer. Med. Journ.," Sept., 1897 ; [9] "Deut. med Woch.," June 23, 1898 ; [10] "New York Med. Journ.," May 29, 1897.

DIPHTHERIA. *Henry Dwight Chapin, M.D., New York.*

Reports upon the continued use of **Antitoxin** in various parts of the world are, in the main, favourable. A few observers, however, are still unconvinced of its utility.

Prof. Kassowitz,[7] of Vienna, in a report before the Gesellschaft der Aertze, states that nowhere can the unprejudiced inquirer find any encouragement or comfort in the serum treatment. Cycles, or

cyclonic waves of a disease, often rage with vigour for a time, and suddenly cease without any obvious assignable cause. Any changes in the mortality rate of diphtheria are thus explained.

Dr. Berlin[2] has treated five hundred and twenty-nine children with antitoxin, with a mortality of fifty-six (10·6 per cent.). While the mortality has been lowered, this showing is not as favourable as was formerly hoped for. The serum cannot be held responsible for severe untoward symptoms, yet it cannot be denied that it acts upon the kidneys. Post diphtheritic paralysis and relapses are more frequent under its use.

Dr. Church[3] presents a report to the Clinical Society of the committee upon antitoxin treatment. Six hundred and thirty-three cases were injected, with a mortality of one hundred and twenty-four (19·5 per cent.), as opposed to 29·6 per cent. in the non-antitoxin control series. Not only is the mortality in the antitoxin series much less than in the other, but the duration of life in the fatal cases is longer, a fact which has considerable bearing on the frequency with which paralytic symptoms occurred.

Dr. Chas. Clubbe[4] reports three hundred cases of diphtheria treated with serum compared with three hundred cases treated without it, at the diphtheria branch of the Sydney Children's Hospital. Of the first three hundred treated with serum, two hundred and forty recovered and sixty died ; of the last three hundred, without serum, one hundred and forty-two recovered and one hundred and fifty-eight died.

Dr. F. Gordon Morrill[5] discusses the period of time in which immunity from diphtheria can be conferred by a single injection of antitoxin.

He believes :—

(1,) That immunity in any given case, of no matter how thorough exposure to diphtheria, may be conferred, for at least ten days, by the injection of a small dose (100 to 250 units) of serum, provided it is given twenty-four hours previous to actual infection.

(2,) That a larger dose (250 units for a child of two years, up to 500 units for one of eight years or over) will confer safety for three weeks—or to be a little more conservative, say twenty days—under similar conditions.

(3,) That no harm will result from the treatment in a vast majority of cases of sick children, and probably in no case of a healthy child, provided the serum used is up to the present standard of purity.

Dr. Monti[6] has treated two hundred and forty-nine cases of diphtheria with antitoxin, with a death rate of 17 per cent. In his

experience of twenty years, previous to the use of antitoxin the death rate varied from 29 to 40 per cent.

Dr. A. Caille[7] distinguishes the following clinical forms of diphtheria as met with in practice : (1,) So-called follicular tonsillitis ; (2,) Primary diphtheria of tonsils and pharynx ; (3,) Primary naso-pharyngeal diphtheria ; (4,) Primary nasal diphtheria ; also called membranous rhinitis or diphtheria larvata ; (5,) Primary laryngeal diphtheria (membranous croup); (6,) Diphtheria without membranes (simulating simple angina); (7,) Secondary diphtheria, following measles, scarlet fever, pertussis, etc.

Dr. T. H. Halsted[8] compares intubation before and after the introduction of antitoxin, with the following conclusions :—

(1,) Laryngeal diphtheria, in any epidemic, is never mild, but has always had a mortality of from 90 to 95 per cent., reduced by operation, intubation, or tracheotomy, to from 72 to 76 per cent.

(2,) The report of his cases shows a mortality of intubations without serum of 76 per cent.; in conjunction with serum, of 25 per cent. ; and, eliminating cases of death within twenty-four hours of injection, a mortality of 10 per cent. The reduction of mortality from 76 to 10 per cent. is to be credited to antitoxin.

(3,) Antitoxin should always be administered as early as possible, and in laryngeal cases without waiting for the bacteriologist's report. If this is done it will usually prevent an extension to the larynx, or, if the larynx is already invaded, an early injection will frequently cure without need of operation.

(4,) No child should be allowed to die of laryngeal stenosis without an operation, preferably intubation, and serum should be injected at once, regardless of the stage of the disease, as most desperate cases often end in recovery.

Dr. F. E. Waxham[9] reports twenty-nine consecutive intubations for diphtheritic croup, with twenty-seven recoveries, all treated with antitoxin.

Dr. Preysz[10] has examined the nervous system of three children dying of diphtheria. In two cases he found an involvement of the spinal cords and several of the peripheral nerves. In the third case, the spinal cord, the vagus, and the phrenic were diseased. In the spinal cord there was atrophy, with localised distinction of nerve cells and hæmorrhage. There was degeneration of the columns of Goll on both sides. There were localised areas of degeneration, and exudation of both anterior and posterior nerve roots. The changes found were all of a degenerative, not of an inflammatory, nature.

Dr. Henry Dwight Chapin[11] gives some clinical observations upon the heart and circulation in diphtheria. A distinct and marked slowing of the pulse rate is a peculiarity not infrequently noted in grave cases. While the quality of the pulse is more important in prognosis than the mere rate, yet the latter may be of grave significance. The slowing may take place before or after a marked quickening. The prognosis will depend upon the degree of slowness, which, if extreme, is always followed by a fatal ending. A case is cited where the pulse rate was reduced to 28 two days before death. When vomiting ensues and the circulation is poor, the prognosis is very bad. An irregular or intermittent pulse, without symptoms of prostration, cannnot have the same significance as when the two co-exist. All stimulants have been tried, but reliance is placed principally upon **Whiskey, Strychnine, Nitro-glycerin**, and, in some cases, **Digitalis.** When vomiting begins, with pallor and stupor, frequent hypodermic stimulation is employed. Small doses of **Morphine,** given hypodermically, are most effectual when the pulse is weak and irregular and the child very restless.

REFERENCES.—[1] "Med. Press and Circ.," June 15, 1898; [2] "Münch. med. Woch.," No. 42, 1897; [3] "Med. Press and Circ.," June 8, 1898; [4] "Brit. Med. Journ.," Oct. 23, 1897; [5] "N. Carolina Med. Journ.," March 20, 1898; [6] "Archiv. f. Kinderh.," Band xxiv., Heft 1, ii; [7] "New York Post. Graduate," vol. xii, No. 10, 1897; [8] "New York Med. Journ.," vol. lxv, No. 24, 1897; [9] "Arch. Ped.," vol. xv, No. 3, 1898; [10] "Arch. f. Kinderh.," Band xxi, Heft 1, iii; [11] "New York Med. Rec.," No. 53, No. 3, 1898.

DIPHTHERIA OF THE CONJUNCTIVA. (See "Conjunctiva, Diseases of.")

DRESSINGS, Etc. *Priestley Leech, M.D., F.R.C.S.*

Dr. Klein[1] recommends for small wounds, and particularly for the physician's hands, collodion, to which 10 per cent. of balsam of Peru is added. This gives complete elasticity, remarkable adhesive power, and a film which is not detached by frequent washing.

Bruns[2] has for the last six months used a paste having the following composition:—

℞ Airol	|	Glycerin	āā 1 part
Mucilage of Acacia	|	White Bole	2 parts

Mix.

It is spread rather thickly over sutured wounds, and rubbed in so as to close all the suture holes. Under its influence, Bruns has seen no suture abscesses.

The following antiseptic varnish is attributed to Nicaise :—

℞ Powdered Lac	grs. 900	Alcohol	grs. 750
Balsam of Tolu	,, 75	Ordinary Ether	,, 1500
Thymol	,, 22		

Mix and filter.

Ointment for soft Chancre.—Szanto[3] says the following ointment is best :—

℞ Salicylic Acid	grs. 15	Tinct. of Benzoin	grs. 30
Vaseline	,, 450		

The ulcer is first washed with a solution of corrosive sublimate, and then covered with a piece of gauze well charged with the ointment :—

Schwartz[4] gives the following powder for suppurating wounds :—

℞ Iodoform	Charcoal	
Salol	Cinchona	
Bismuth Subnit.	Benzoin	āā equal parts

Dr. Ortega[5] has obtained rapid cures in five cases of axillary abscess, one of diffused phlegmon of the forearm, and one of suppurating bubo, in the following way: The affected part is first cleansed antiseptically, the abscess is punctured, and the pus evacuated, and the following mixture is then injected with a glass syringe, in sufficient quantity to distend the pus cavity :—

Borax	gms. 2	Vaseline	gms. 60
Antipyrine	,, 2		

The orifice is then closed with the finger and the part lightly rubbed, so as to bring into contact with the entire suppurating surface. A simple dressing of absorbent cotton is then applied.

Hobday[6] discusses the therapeutic and toxicological effects of chinosol. He has used it for nine months in both the canine and equine clinic. The strength of the solution which was found to give the best results was ½ a grain to 1 grain to the ounce. (See article "Chinosol," p. 20.)

REFERENCES.—[1] "Therap. Monats.," p. 238, Heft 4, 1897 ; [2] "Beitrage z. klin. Chir.," xviii, 2 ; [3] "Med. Age," Aug. 10, 1897 ; [4] "Quebec rèv. méd.," Sept. 8, 1897 ; [5] "Amer. Med. and Surg. Bull.," Feb. 28, 1898 ; [6] "Journ. Comp. Path. and Therap.," March, 1898 ; quoted in Epit. "Brit. Med. Journ.," June 4, 1898.

DUODENAL ULCER. *Priestley Leech, M.D., F.R.C.S.*

Notes of six cases of this malady were read at the Société de Chirurgie ; five were operated on, a correct diagnosis not having been made, and they all died ; one was too ill to have any operation done.

M. Colin in a recent thesis has collected two hundred and sixty-four cases of duodenal ulcer, and his conclusions are as follows: The ulcer is nearly always single, situated near the pylorus, and but rarely near the terminal part of the duodenum; its usual seat is the anterior wall; it rarely becomes gangrenous, repair seldom occurs, and it has a great tendency to perforate (69 times out of 100 cases). When perforation occurs septic peritonitis as a rule results, and the intestinal contents flood the peritoneal cavity.

What is particularly noticeable is that the patients die of peritonitis from perforation, and have had few or no signs of illness previous to perforation. When perforation takes place, there is a sudden, very acute sub-costal pain, which rapidly becomes generalised all over the abdomen; sometimes a crack is felt in the abdomen. Vomiting is rare; the hepatic dulness disappears and the pulse and temperature do not correspond.

Early operation is necessary; cases of cure are however rare As regards diagnosis, one thinks of intestinal obstruction rather than ulcer of the duodenum.

REFERENCE.—[1] "Gaz. des Hôpitaux," No. 6, 1898, quoted in "Quart. Med. Journ.," for April, 1898.

DYSMENORRHŒA. (See "Menstruation, Disorders of.")

DYSPHAGIÆ. *R. Lake, F.R.C.S.*

Orthoform is rapidly ousting all the old and well established local anæsthetics. According to Lichtwitz and Sabrazes,[1] it is of use in those forms of dysphagia which are due to disease with surface destruction in any part of the upper alimentary tract. Its action is very prolonged; it gives rise to no constitutional disturbance, and has no after effects.

The long duration of the anæsthesia is entirely and satisfactorily explained by its slight solubility in the fluids of the body. From this fact one learns that if the breach of surface is liable to the constant passage over it of food, saliva, etc., one must constantly renew the application of the drug, and as this is innocuous it is of no great moment. And it is just this freedom of application, which is such great advantage, for as far as one can learn from published reports and from one's own experience, there seems no tendency for patients to establish a tolerance for it. To obtain the full effect the powder must be liberally used, and care be taken that, as far as possible, most of it lies on parts denuded of epithelium, for it has apparently but small power in penetrating through unbroken epithelium.

According to Lichtwitz, the anæsthetic state may last even over

twenty four hours, and from the same authority we learn that it does not posses the antiseptic action claimed for it by Heine. The conditions under which it has been recorded as giving good results are epitheliomata of mouth, larynx, and pharynx, and tuberculosis of the larynx.

One may also mention, in connection with orthoform, its use in ulcerative stomatitis.

Yonge[2] gives five or six days as the limit of the duration of anæsthesia, though this seems over long. He uses, besides the powder, a pastille, a saturated collodion, an alcoholic spray, an ointment, and a paint. The spray is quite the best means of application to the larynx :—

℞	Orthoform	grns. 5	Aquæ	āā ℥ 50
	Sp. Vini Rect.		M.	

The following[3] are recommended for dysphagia where there is ulceration, either malignant or tubercular :—

℞	Cocaine Hydrochlor.	·25	Aq. Laurocerasi	q.s.
	Morphia Hydrochlor	·10	Aquæ dest.	ad 50·00
	Antipyrine	2·00		

M. Sig.—3 to 4 tablespoonfuls sprayed on during twenty-four hours.

Or,

℞	Hydrochlorate of Morphia	·2	Gum Arabic	·4
	Sugar of Milk	·4		

M. Sig.—For use with insufflator.

REFERENCES.—[1] "Le Bull. méd.," Nov. 21, 1897; [2] "Brit. Med. Journ."; [3] "Laryngoscope," Aug., 1897.

EAR (Diseases of). *J. Dundas Grant, M.D., F.R.C.S.*

The treatment of *acute inflammation of the external meatus* is familiar to our readers. It has been pointed out that perichondritis of the auricle is one of its occasional results, and that it is also sometimes accompanied by superficial inflammation over the mastoid process, and Hessler[1] states that infective inflammation of the external ear may give rise to osteitis of the mastoid process. He describes two cases in women who had scratched the auditory canals with hair-pins to relieve the itching. The mastoid inflammation was such that a chiselling operation was carried out, and in both instances a spongy, brownish brittle condition of the bony structure of the mastoid cortex and cavity was revealed, but without any inflammatory swelling of the epithelial lining, undue secretion, or caries.

In such cases the call for operation on the mastoid is very questionable indeed. (There is occasionally a great difficulty in differentiating between the condition described and the genuine inflammation of the

mastoid cells, in which case there is the usual accompaniment of swelling in the external meatus. The difficulty does not often occur, but when in doubt there is probably greater safety in operating, as Hessler was led to do.)

Parasitic Inflammation of the External Meatus: Otomycosis.—Obstinately recurring inflammation of the external meatus due to the presence of a fungus, aspergillus, is treated by Dr. L. Bar,[2] of Nice, as follows: The false fungoid membrane is removed from the external meatus, the ear is to be irrigated with a tepid solution of **Chloride of Lime**, 1 in 500, and then instillations of **Salicylic Acid** (2 per cent. in alcohol) are employed. If the case does not respond quickly to this treatment the canal must be touched either with **Nitrate of Silver** (1 in 10) or **Tincture of Iodine.**

Acute Suppurative Inflammation of the Middle Ear.—Paracentesis of the tympanum is advocated on the traditional well-established indications—pain, fever, bulging of the membrane, obvious presence of pus—by Gruber,[3] Randall,[4] Field,[5] Dalby,[6] and others. On the other hand, Robert H. Woods,[7] of Dublin, has demonstrated beyond question that in the exanthemata, at least, the number of ears which come to suppuration is very materially diminished, if the "ovoids" containing the following in a basis of gelato-glycerin are introduced :—

℞ Ext. Opii Liq.	gr. $\frac{1}{7}$	Cocain. Hydrochl.	
		Atrop. Sulph.	āā gr. $\frac{1}{14}$

He does not, however, deprecate paracentesis in every instance. It is unquestionably only after spontaneous or artificial perforation that many tympanic effusions become purulent, the conversion being determined by invasion of microbes, notably staphylococci, as shown by Lermoyez,[8] from without. Paracentesis should therefore be conducted with all aseptic or antiseptic precautions. The meatus and auricle should be sterilised just like the skin, before any operation, such as the opening of a joint, or before the expected bursting of an abscess. Lake,[9] Würdemann,[10] and Cheatle,[11] among others, dwell upon this point and give details.

Sterilisation of the Auricle and Meatus previous to Paracentesis of the Tympanic Membrane or other Tympanic Operation (*vide* "Medical Annual," 1898, p. 186).—Lake[12] recommends 1 in 15 of phenol in glycerin and water for the auricle, and for rubbing the external meatus with a dossil of wool soaked in the solution, the free solution being then washed away with sterilised water (a 1 in 40 carbolic lotion). Würdemann[13] wipes the canal dry and renders it "aseptic by sublimate or boric wash." Cheatle[14] rubs the skin of the meatus, especially

the outer segment, with Lister's "strong" lotion (a 1 in 20 watery solution of carbolic acid with 1 in 200 corrosive sublimate). The auricle is similarly disinfected, and an antiseptic dressing of bi-cyanide gauze wrung out in weak sublimate (1 in 4000) lotion. Dench [15] sterilises the meatus by means of a 1 in 3000 solution of corrosive sublimate in equal parts of rectified spirit and water.

(As a *general routine application of the above-described principles*, the editor would suggest the following course of action: In the presence of "stormy" symptoms—violent pain along with fever suggesting pyæmia, or mental disturbance, vomiting, etc., suggesting meningitis—the auricle and meatus should at once be disinfected by gentle syringing with boric lotion and the instillation of a 1 in 300 solution of perchloride or biniodide of mercury in rectified spirit and water, or by the use of Lister's "strong" solution; a 20 per cent. solution of hydrochlorate of cocaine, containing 1 per cent. of pure phenol should then be dropped in and retained for ten minutes, and paracentesis should then at once be performed. A "wick" of iodoform gauze is then introduced into the meatus, and an antiseptic dressing applied over the auricle.

In the general run of cases no more effective "canister-shot" could be imagined than the "ovoids" of cocaine, opium, atropine, and creolin, so ingeniously elaborated by Robert H. Woods, their introduction being preceded by a gentle syringing with a lotion consisting of corrosive sublimate 1 part, distilled water 1000, and glycerin 100. The editor would remind his readers of the value of simple instillations of solutions of cocaine as recommended by Von Stein.[16]

Lastly, the instillation of carbolised glycerin (1 in 5 to 1 in 20), introduced by Bendelack Hewitson, has received the strongest commendation from Hartmann.[17] This has been confirmed by the editor's own experience, and he would advise its use (1 in 20) on the slightest threatening of acute otitis, as a sedative and antiseptic.

The pad of wool which should be applied over the ear in cases of inflammatory pain should be antiseptic—alembroth.)

Mastoid Complication causing Persistence of Acute Suppurative Median Otitis.—When in spite of careful antiseptic treatment, suppuration persists beyond a month or six weeks, two causes should be reviewed, viz., small or badly-placed perforation unfavourable for drainage (especially if in the membrane of Shrapnell), and implication of the mastoid cells. The latter may be practically "latent" so far as staring mastoid signs are concerned, there being perhaps slight pitting or scarcely perceptible tenderness on pressure on the mastoid at the level of the meatus. On exposure and removal of a thin layer

of bone, there may be, and frequently is, exposed a cavity of the size of a large Barcelona nut-shell filled with pus and lined with exuberant granulations. This cavity has, as a rule, no direct communication with the antrum or middle-ear, its natural connection—like that of a very narrow-necked bottle—having been obliterated by inflammatory swelling, as pointed out by Politzer,[18] in his report on the aural complications of influenza. The completeness of the *restitutio ad integrum*, after this operation of "cortical mastoidotomy," has been, to the editor, most striking, and he ventures to ask whether a chronic suppuration of the middle ear should be allowed to establish itself without this comparatively simple operation having been performed? Milligan[19] seeks at the same time for the mastoid antrum, and Müller[20] advocates operation in all cases of acute suppuration of the middle ear—apart from mastoid or other pain—which resist treatment for fourteen days. (For the description of this operation our readers are referred to the editor's special article on "Mastoid Operations," in the present volume.)

Chronic Suppurative Disease of the Middle Ear. — The non-operative treatment is very strongly advocated by Albert H. Buck,[21] in view of the increasing tendency to resort to operations (such as ossicolectomy and Stacke's operation), the value and safety of which he fully concedes. It is in private as distinguished from Hospital practice that the non-operative treatment is most called for. His mode of treatment is, in brief, to clean away all granulation tissue, epithelial *débris* and detritus, making considerable use of injections of **Hydrogen Peroxide** through variously curved glass tubes, and, when the cavity has been cleansed, to introduce **Iodoform, Europhen, Aristol,** or other antiseptic powder. Faulder White[22] has obtained good results from irrigation and the use of **Salufer.** Bishop[23] recommends as a typical method the following: Irrigation with **Corrosive Sublimate** (1 in 5000); inflation with **Camphor-Menthol** vapour (1 in 10) through the Eustachian tube; removal of the discharge, thus projected into the meatus, by means of cotton-wool; filling the ear with **Warmed Dioxide of Hydrogen;** drying out and blowing-in **Aristol** with, if the discharge does not diminish rapidly, the addition of **Boric Acid.** After a few repetitions of this, he resorts to the "dry" method. He finds **Nosophen** an effective antiseptic drying powder. To evacuate the middle ear and accessory cavities, he uses an ear-aspirator. J. H. Marsh[24] finds **Izal** lotion a comparatively unirritating but powerful antiseptic, and **Acetanilide** an active agent in reducing discharge and keeping the cavity sweet without forming an impervious scab-like iodoform. Milligan[25] leans

strongly towards the early radical operative treatment, and poses the difficult question as to when it should be undertaken, realising that if we wait for the occurrence of pain, we are apt to be too late. Lucae[26] considers giddiness, pain, and the extrusion of "cholesteatomatous" masses, not merely a few flakes of epithelium—as among the chief indications for operation. Müller[27] holds that if the chronic suppuration resists treatment for more than two months, operation is called for. Ludewig insists on the removal of the ossicles before resorting to the "radical" operation, except in extensive cholesteatoma, with caries of the petrous bone. Kretschmann[28] again draws attention to the hypotympanic space—the "cellar" of the tympanum—as a seat of persistent suppuration, and advocates the use of rotating burrs for removing its outer wall. Porcher[29] reports some good results under the use of **Oxygen**, and Scheppegrell[30] recommends **Ozone** as generated from atmospheric air—not from oxygen—by means of a sort of tubular, Leyden jar. Among other remedies for "otorrhœa" have been recommended the **Citrate** and **Lactate of Silver**,[31] in solutions of from 1 to 20 per 1000. The following "drops"[32] probably owe their efficacy to the **Alcohol** they contain: Iodide of Potassium, 20 grns.; Tinct. of Iodine, ℥ij; Alcohol, Glycerin, āā ℥iv; Iodoform, 20 grns.

The "radical" operation will be found described in the special article in this volume on "Mastoid Operations."

Indications for Operation on the Mastoid.—Lake[33] classifies these as follows:—

I.—(1,) Acute otitis media suppurativa with acute disease of the antrum.
(2,) Influenzal mastoiditis.
(3,) Secondary infection from meatal abscess.
(4,) Acute tuberculosis of the middle ear.
II.—(5,) Chronic otitis media suppurativa.
(6,) Acute exacerbation in chronic disease.
(7,) Periodic or constantly recurring discharge.
(8,) Facial paralysis (in chronic cases, rare in acute).
(9,) Cholesteatomata of attic and antrum.
(10,) Vertigo (definite horizontal) on syringing.
(11,) Persistent mastoid pain (sclerosis of mastoid).
(12,) Contraction of meatus.
(13,) Bezold's mastoiditis.
(14,) Mastoid fistula.
(15,) Necrosis.
III.—(16,) As a preliminary to other operation.

Although founded in part on symptomatic, and in part on ana-

tomical conditions, so that cross-divisions are inevitable, this grouping is of considerable practical value, if the reservations indicated in the writer's text are noted. The point chiefly open to question is the third, viz., secondary infection from meatal abscess, which frequently produces an extra-osseal infiltration over the "mastoid" bone, but not such an affection of the bone itself as to justify a chiselling operation except in cases of doubt. The writer allows two to three months as the time limit necessary to call a suppurative otitis chronic. MacCuen Smith[34] refers to the occurrence of mastoid empyema without objective changes on the outside of the region. This results from acute median otitis, and is generally indicated by persistence of the discharge, tenderness on local pressure often very indistinct, possibly fever and headache, and McCuen Smith has observed the occurrence of pain below and to one side of the external occipital protuberance. Ward-Cousins[35] looks on the presence of acute symptoms in the course of a chronic suppuration as the indication for operative interference.

The simulation of mastoid inflammation by periostitis, secondary to external otitis, is referred to by Rimini[36] and MacCuen Smith.[37]

Cervical Abscesses due to otitis media may, according to Quervain,[38] be of the following kinds: (1,) Sub-mastoid abscess; (2,) Phlegmonous inflammation of the lateral regions of the neck; (3,) Retro-maxillary, sub-maxillary or retro-pharyngeal abscess; (4,) Abscess of the nape of the neck. Free trephining of the mastoid is called for, and the retro-pharyngeal form should be opened externally.

For the prevention of dangerous complications, Gruening[39] insists on early paracentesis; Grossard[40] advocates washing out the tympanum with boric lotion or pheno-salyl (1 per 100), through the Eustachian tube by means of the catheter. The editor has seen mastoid inflammation subside under this treatment as recommended by Politzer,[41] but he has seen a case in which a fatal meningitis developed during the time occupied in watching the result of Eustachian irrigation. The life would almost certainly have been saved had he been allowed to operate at once. The irrigation should only be practised when the patient is directly under the aurist's observation, and not, as in the case quoted, at a distance, and only seen in consultation.

The Dangerous Sequelæ of Suppurative Otitis.—It is now generally agreed that in the operative treatment of these affections, whether they take the form of extradural abscess, meningitis, pyæmia, sinus-phlebitis or brain abscess, the opening of the antrum should be made the starting-point. Gorham Bacon[42] insists on this, and advises that

if caries of the tympanic roof is detected, the opening should be enlarged so as to admit of thorough inspection of the dura. Heiman[43] goes so far as to say that when aural suppuration is complicated with fever, and pain localised mainly in the occipital region, and when these symptoms have resisted treatment with drugs and revulsives, the cranial cavity ought to be opened behind the mastoid wound. He finds his percentage of cures considerably higher since the adoption of this course of action.

Extradural Abscess.—Dundas Grant[44] describes a case in which a fluctuating swelling existed above the usual seat of mastoid abscess. When this was pressed, pus oozed from the meatus, and after cleansing, it could be seen that this came not from the outer passage, but from the tympanic cavity. It was therefore a subdural abscess of the "shirt-stud" nature which had perforated the skull. Free trephining, disinfection of the inflamed dura, and "radical" clearance of the mastoid antrum and cells led to complete recovery. This is the most easily-detected form. Milligan narrated a similar case before the British Laryngological Association in October, 1898. On the other hand, cases occur in which the symptoms may be limited to severe pain in the ear or on one side of the head, with a scarcely hyperæmic membrane, and no appearance of inflammation of the mastoid process as described by Grunert.[45] He considers the disproportion or even incongruity of the subjective and objective conditions of great diagnostic importance. It is when the condition occurs in the course of an acute median otitis, that its nature is most apt to be overlooked, and when the appearance of the tympanic membrane suggests a subsidence of the inflammation but the pain persists, we should keep before our minds the possibility of the pus having discharged itself into the cranium, to the great danger of the patient. Treatment by operation is extremely encouraging in its results.

Pyæmia resulting from Suppurative Inflammation of the Middle Ear.—It is well recognised that this may occur without as well as with thrombo-phlebitis of the lateral sinus, or rather of the lower part of it known as the sigmoid sinus. The former is most common in the pyæmia—osteophlebitic—following acute otitis, the latter in that following the chronic, so that from the acuteness or chronicity of the "otorrhœa" we derive most valuable indications as to diagnosis and treatment, the pyæmic symptoms resulting from acute otitis usually yielding to free opening of the cavities of the middle ear and mastoid, whereas, in the others, a careful exploration of the sinus and prompt operation in accordance with the results of this exploration are im-

peratively demanded. The question of ligaturing the internal jugular rarely arises in the former class, but in the latter it is of the greatest importance, the general indication for it being the presence of breaking-down clot in the bulb or trunk of the internal jugular vein not shut off from the thoracic continuation of the vessel; obviously, it is difficult to decide as to the absence or presence of such conditions.

Röpke,[46] in a case of pyæmia from acute median otitis, found the thrombus in the sinus so dense that he did not consider it necessary to produce by ligature any further occlusion of the internal jugular vein, but completely removed the source of infection by means of a radical mastoid operation, and the patient made a good recovery. Dr. Grant brought before the British Laryngological Association a case in which the radical mastoid operation had to be performed without delay on account of severe pyæmic symptoms. The lateral sinus was exposed and found to be perforated and filled at the exposed part with fœtid pus, resulting from the breaking down of a clot. The vessel was exposed in both directions, but it was found that the suppurating area was quite limited by firm healthy organised clot. The broken-down clot was freely removed, the cavity in the vessel disinfected without removal of the solid thrombus. No ligature appeared to be necessary, and the patient made a good recovery. In this case the absolute solidity of the thrombus made the decision as to ligaturing comparatively easy.

On the other hand, in Eulenstein's[47] case, ligature was postponed, but was soon rendered necessary by the occurrence of rigors, febrile temperature, bloody expectoration and jaundice. Eulenstein agrees with Jansen that if after clearing out the sinus high fever persists, chills occur, or pus exudes from the bulb, the jugular and facial veins should be ligatured, the former being slit up as far as the base of the skull.

The Indications for Ligature of the Internal Jugular Vein have been formulated by Whiting[48] as follows :—

First.—Before exposure of the sinus, a majority of the following :—

(*a*,) The existence of chronic otorrhœa.

(*b*,) Pronounced pyo-septicæmia, high fever, sudden remissions and repeated rigors.

(*c*,) Metastases.

(*d*,) Griesinger's sign, occipital œdema.

(*e*,) Œdema of the eyelids of the corresponding side.

(*f*,) Tenderness, and perhaps cord-like hardness, along the vein.

(*g*,) Beginning neuro-retinitis.

Second.—After exposing the sinus and recognising the thrombosis, but before opening it :—

(*a*,) Clot extending down to the bulb, and disintegrated in its lower portion (as indicated by the aspirator), associated with distinct pyæmic symptoms, even in the absence of metastases.

(*b*,) Respiratory movement of the sinus wall.

Third.—After exposing and opening the sinus:—

(*a*,) Thrombus extending down into the bulb having undergone liquefaction in its deep bulbar portion.

(*b*,) Inability to re-establish the circulation from below, whether the clot has or has not disintegrated, and whether or not there has been tenderness in the neck.

(*c*,) Inability to re-establish the circulation from either direction, has aroused some discussion as to the advisability of ligating both jugulars.

Exceptions to the above rules certainly occur, as in the cases of firm clot above quoted. Again, ligature of the jugular was called for, owing to persistence of pyæmia in an *acute* case under Weissgerber,[49] pus escaping from the interior of the sinus after incision. In general, Whiting's indications may be safely adopted.

REFERENCES.—[1] "Amer. Journ. Med. Sci.," Jan., 1898 ; " Deut. med. Woch.," 23rd year, No. 29 ; [2] " Journ. of Laryngol.," Nov., 1897 ; [3] " Med. Press and Circ.," Jan. 5, 1898 ; [4] " Philadel. Polyclin.," Oct. 6, 1897 ; [5] " Brit. Med. Journ.," Jan. 12, 1897 ; [6] Ibid., July 24, 1897 ; [7] " Journ. of Laryngol.," Jan., 1898 ; [8] " Ibid., Oct., 1895 ; [9] " Treatment," Feb. 10, 1898 ; [10] " Laryngoscope," Sep., 1897 ; [11] " Edin. Med. Journ.," June, 1898 ; [12] Treatment," Feb. 10, 1898 ; [13] Laryngoscope," Sep., 1897 ; [14] " Edin. Med. Journ.," June, 1898 ; [15] " Dis. of the Ear," 1895, p. 467 ; [16] " Med. Ann.," 1891, p. 169 ; [17] " Dis. of Ear," 1898 ; [18] " Brit. Med. Journ.," Dec. 31, 1892 ; [19] " Liverpool Med. Chir. Journ.," July, 1897 ; [20] " Journ. of Laryngol.," May, 1898 ; [21] " Med. Record," Sep. 25, 1897 ; [22] " Brit. Med. Journ.," Feb. 1, 1896 ; [23] " Laryngoscope," Aug., 1897 ; [24] " Brit. Med. Journ.," July 24, 1897 ; [25] " Liverpool Med. Chir. Journ.," July, 1897 ; [26] " Journ. of Laryngol.," Aug., 1897 ; [27] " Ibid., June, 1898 ; [28] " Amer. Journ. Med. Sci.," Jan., 1898 ; [29] " New York Med. Journ.," July 24, 1897 ; [30] " Journ. of Laryngol.," July, 1897 ; [31] " Med. Weekly," May 7, 1897 ; [32] " Med. Press and Circ.," Apl. 7, 1897 ; [33] Ibid., Jan. 19, 1898 ; [34] " Therap. Gaz.," Aug. 16, 1897 ; [35] " Brit. Med. Journ.," Nov. 27, 1897 ; [36] " Journ. of Laryngol.," May, 1897 ; [37] " Therap. Gaz.," June 15, 1897 ; [38] " Brit. Med. Journ.," Epit., Oct. 2, 1897 ; [39] " Med. Record," Dec. 11, 1897 ; [40] " Journ. of Laryngol.," Sep., 1897 ; [41] " Dis. of the Ear," 1898, p. 493 ; [42] " Med. Record," Dec. 11, 1897 ; [43] " Ann. des mal. de l'oreille," Nov., 1897 ; " Journ. of Laryngol.," April, 1898 : [44] Ibid. ; [45] Ibid., March, 1898 ; [46] " Arch. of Otol.," vol. xxv, No. 4 ; [47] Ibid., April, 1897 ; [48] Ibid., Feb., 1898 ; [49] " Amer. Journ. Med. Sci.," Sep., 1897.

ECLAMPSIA. (See "Puerperal Eclampsia.")

ECTROPION. (See "Eye-Lids, Diseases of.")

ECZEMA. *T. Colcott Fox, M.B.*

The term *Eczema* is derived from a word implying that which is thrown up by boiling, and the name was given on account of the accompanying heat and tingling. Though dating from the sixth century (Hebra) it is only since the time of Willan that the meaning has been attached to it which is now generally recognised. Bateman, Willan's colleague and editor, defined it as "an eruption of *minute* vesicles, not contagious, crowded together; and which, from the absorption of the fluid they contain, form into thin flakes or crusts." It was held to be the effect of a great variety of irritants, acting internally or externally, in persons whose skin is constitutionally very irritable, and the term included eczema solare or sun heat; eczema impetiginodes produced by the irritation of various substances, as sugar, lime, machine dust, blisters, cataplasms, irritating medicaments, etc.; and eczema rubrum arising from mercury administered internally, or from gastro-intestinal irritation.

A. T. Thomson emphasised the inflammatory nature of the eruption and thought an irritable nervous system was a strong predisposing cause. Subsequently Biett established a division into acute and chronic forms, and Rayer called attention to the necessity of distinguishing local peculiarities. Devergie insisted on the redness, more or less constant itching, the secretion of a transparent fluid, stiffening linen, and the substitution for vesicles in many cases of little red points (*état ponctué*) from which the secretion oozes.

Hebra made an enormous advance by developing Rayer's contention that Willan's conception was too narrow, and that the inflammation, called eczema, was liable to pass through various stages from the erythematous and papular to the pustular and scaly, and that the vesicular stage described by Willan was only one phase. On the other hand, the Vienna school erred in including some affections, such as impetigo contagiosa and so-called eczema marginatum (ringworm), which are now by general consent excluded. Hebra held that external agents, in which he included scratching, were largely concerned in its production, but he allowed that eczema might arise from certain well-known constitutional disorders, as impaired digestion, hysteria, etc., whilst the etiology of many cases remained a mystery.

Kaposi says eczema (including impetigo contagiosa and eczema marginatum) must be considered a morbid entity, if not only the

forms, but all the circumstances, the symptoms, the course, the causes, and the history be taken into account. Besnier denies that all the forms of eczema can be produced by external irritants (excluding parasites), and holds that it is a composite group. He excludes the dermatitis produced by well-known external irritants. It is for workers in the future, he says, to revise and purify the group, as with the groups herpes, pemphigus, lichen, etc. For him what we call eczema is sometimes a simple irritative lesion of banal origin; sometimes a constituted pathological state, provoked and kept up by extrinsic conditions, such as parasites, etc.; sometimes a malady, properly so-called, bound to intrinsic morbid conditions.

To these descriptions of eczema we must now add a note of Unna's conception of *seborrhœic eczema* or *seborrhœic catarrh of the skin*. He has united together a number of phases of disease, mostly called seborrhœas previously, under the term *eczema seborrhœicum*. They are, according to his researches, characterised histologically in the same way as all other eczemas, viz.: (1,) A parakeratosis of the epidermis, which is the *conditio sine qua non* of the diagnosis of every eczema; (2,) An epithelial proliferation (akanthosis); (3,) More or less profound inflammation of the cutis; and (4,) An increase in cutaneous fat, and an indication of increased activity of the coil glands. Unna asserts the parasitic origin of eczema and finds morococci present not only in seborrhœic eczema but in all eczemas. The characteristics of eczema seborrhœicum are:—

(1,) The regular progression, in most cases, over the surface of the skin from the hairy scalp downward, though atypical and occasional forms exist.

(2,) Though uniformity of eruption may exist, polymorphism is the rule, and a transition may be observed into pityriasic papulo-squamous, papulo-crusted, dry, oily, or weeping forms.

(3,) A tendency to serpiginous extension and healing in the centre.

(4,) A certain well-marked yellowish discolouration of the skin.

(5,) A minor degree of subjective symptoms, except in rapidly extending lesions.

The simple elementary forms occur as yellow discolourations, hyperæmic spots, and scaly or pityriasic spots, and these are combined into various macular, papular, scaly, crusted, dry, greasy and weeping forms, with a strong tendency to circination. This seborrhœic eczema can thus be distinguished from other forms of eczema. Unna also describes a tuberculous eczema. He thus classifies eczemas, chiefly, from an etiological standpoint. This conception of seborrhœic eczema has been widely approved, but Neisser does not

accept it. For the rest this authority holds to the anatomical idea of eczema; to the form, he would only add to Hebra's definition the essential nature of the epithelial alteration. The anatomical picture, he says, is characteristic, and not varied in eczemas of a totally different course, or that produced by very different causes.

In further illustration of the diversity of opinions existing as to the etiology of eczema we may cite Sir Alfred Garrod, who writes that eczema is the skin disease which is characteristic in gouty subjects, though the exudation contains no urates. The latter circumstance he explains by the fact that the inflammatory process causing the vesicle destroys the acid. Hutchinson says it is only exceptionally that the cause of eczema is a single one. In most cases hereditary tendency, constitutional proclivity, the state of the blood, and local irritation of the skin itself are elements which all enter into partnership in the production of eczematous inflammation.

We may allude to the circumstance noted by Willan's followers that when eczematous inflammation is excited by an external irritant it is apt to extend beyond the orginal area to which the irritant was applied, and is apt to continue in successive series after the stimulus is withdrawn. Hutchinson in later days has developed a doctrine of the infective properties of inflammation which has some bearing on this.

Lastly, we may quote F. J. Payne's suggestion that there are microbes originally present in the skin, and that when their activity is heightened by some trauma, or disturbance of nutrition, eczema results, although the microbes rarely acquire such virulence as to produce actual contagion to another individual. Probably several species of bacteria may be concerned.

With this introduction we may refer to a discussion on the question, "*What are we to understand by Eczema?*" which took place at the British Medical Association Meeting at Edinburgh.[1] Malcolm Morris and Wallace Beatty introduced the debate with reviews of what is meant by eczema, but it cannot be said that our conceptions were in any way advanced by the debate. Two points came out clearly, viz., the extreme difficulty of framing any definition satisfactorily comprising the multiform phases of the process called eczema, and the impossibility of splitting up the group scientifically in the present stage of our knowledge of the etiology.

To those interested in this subject we commend a most thoughtful and well written pamphlet by Leslie Roberts entitled, "A contribution to the study of Eczema." Amongst notable publications may be mentioned a monograph by Leredde, "L'Eczéma (maladie parasitaire)

nature, pathogénie diagnostic et Traitement," He gives a short historical review of eczema from Willan to Unna, discusses recent theories of eczema and provisionally maintains the term eczema seborrhœicum, and for the present separates it from true eczema. Leredde then considers the pathological anatomy and bacteriology, the etiology, pathogeny and the clinical features, the secondary infections, the diagnosis and treatment.

TREATMENT.—We will note one or two special points in the treatment where fermentative dyspepsia exists. Leredde advocates Albert Robin's treatment by administering after each meal **Fluoride of Ammonium** (see "Treatment of Dyspepsia in Traité de Therapeutique appliquée"), and in the case of butyric fermentation the following cachet *with* each meal :—

℞ Erythrol (double Iod. of Bism. and Cinchonidine) 0·10 grms. | Calcined Magnesia 0·20 grms.

Alkalies find their place in the period of regression of non-dyspeptic cases after the administration of diuretics and purgatives.

Brocq prescribes a mixture of **Benzoate of Sodium, Bicarbonate of Sodium** with some bitters. In relapsing eczema of the gouty the carbonate, benzoate and salicylate of lithia are useful. For instance, a mixture of bicarbonate of soda and carbonate and salicylate of lithia in water charged with carbonic acid.

L. Duncan Bulkley[2] writes on *Neurotic Eczema.* He gives warm pure milk one hour before each meal and also at bedtime.

Infantile Eczema, characterised by its frequent origin in early infancy, its symmetry, and descending progress from the scalp, is one of the most clearly defined types, and year by year excellent papers appear setting forth the lines on which it should be treated. Pusey[3] says the subjects of it are apparently in vigorous health, but minute investigation discloses in the vast majority either (1,) Disturbances of digestion usually traceable to improper feeding at the breast or by hand : or (2,) Unsuitable breast milk ; or (3,) Failure of balance between assimilation and excretion, usually from over-feeding. These errors bring about an accumulation in the blood of toxic products (toxæmia). No proof of these statements are, however, forthcoming. Local cause of irritation cannot be overlooked, such as soaps, water, scratching, etc., acting on an inherently sensitive skin, and Prof. J. C. White has insisted on the changed conditions in passing from a subaqueous intra-uterine existence into an atmospheric envelope. So also a reflex nervous influence radiating from the digestive tract, or troubles of dentition, or adherent prepuce may come into play, though perhaps only as an aggravating factor.

With regard to *treatment*, Pusey says there are no specifics, and arsenic is not called for as a rule. The indications are: (1,) To correct the causes of toxæmia pointed out above by suitable regulation of the diet, and by medicinal action on the digestive tract; (2,) To protect diseased surfaces from the local sources of irritation mentioned. For the latter purpose, bathing should be carried out with water boiled with bran, or rice, or gelatin to which a little bicarbonate of soda may be added. Healthy parts should be thereafter dusted with a bland powder, such as boricated talc or stearate of zinc. *Prevention of scratching* is to be achieved by constant watchfulness, or muffling of the hands, by covering diseased surfaces with a mask or cap on which salves may be spread, or by adopting White's plan of elaborately pinning up the arms and legs in a pillow case, which allows the head to come through. (In our opinion splints are much the most effective means for keeping the infant from rubbing and scratching.—T. C. F.) *Cleansing of pus and crusts* can be effected by prolonged saturation in sweet almond oil or olive oil, or boricated vaseline, or maceration with boric acid wet dressings. *Local medicinal treatment* for weeping surfaces should consist of equal parts of black wash and lime water with ʒij–iv of mucilage of tragacanth to the pint; or liq. plumbi subacet., ♏vj–xviij; glycerin, ♏ix–xviij to aq. destill. Oj. When less weeping, lot. calaminæ is useful. After dabbing on these lotions a salve should be also applied spread on the mask, such as Lassar's paste, or zinc ointment or well-made fresh diachylon ointment, a mixture of lanolin and vaseline, to which salicylic acid (gr. v to the ʒj) or resorcin, or carbolic acid or ichthyol can be added if desired. As the condition improves, stimulation can be effected by increasing the strength of the medicaments, and smearing them on. Tar is the best pronounced stimulant.

Comby[4] also deals with the treatment of infantile eczema.

W. M. Nelson[5] has an excellent paper on the *Local Treatment of Eczema.* He also advises avoidance of soap and water or even plain water. If the latter is used at all it should be hot, and thoroughly and quickly dried off, and the selected dressing applied. But a thin strained decoction of oatmeal, bran, barley, or rice milk, or thin hot starch, boricated (ʒj to Oj), is better. Cottonseed oil cleanses well.

Removal of Crusts and Scales.—Saturation with oil sopped on or soaked into lint or canton-flannel, the whole covered with a cap. Properly made boricated starch poultices are useful for non-hairy parts. Gruel or decoction of marshmallow, to either of which sodium bicarbonate (ʒj to Oj) has been added, is serviceable. Vaseline acts

well in macerating abundant scales and crusts on a surface which is not very sensitive.

Nelson goes over the various forms of eczema seen in different regions, and points out the most suitable applications.

In an American "Text-book of Genito-Urinary Diseases, Syphilis, and Diseases of the Skin," edited by Drs. Bangs and Hardaway, 1898, the reader will find an excellent chapter on eczema by Hardaway, and a great collection of favourite external applications.

Jacquet[6] claims success for a treatment of chronic patches of eczema by **Scarification,** which will not, we think, be widely adopted. Cold potato starch poultices are, first of all, constanly applied. Secondly, the places are scarified with a sharp instrument in parallel lines to a depth of 3 millimètres, but without cross cuts. Thirdly, the patches are dressed with wet compresses, and on reaching home the starch poultices are renewed. In three or four days all trace of the scarifications are gone, and the latter are repeated, perhaps, six to thirteen times.

Davezac[7] recommends **Buckskin** to be placed over any ointment applied to eczema. It is flexible, easily cleansed, does not readily absorb the ointment, does not dry and adhere, and can be readily removed without tearing away the new epidermis.

Aubert[8] says that the keratogenic properties of **Picric Acid** find their chief field of usefulness in the acute, superficial forms of eczema, and not in the chronic indurated forms with epidermic thickening. It stops itching, and subdues the inflammation, and with the discharge and *débris* forms a protective coating ; 12 grammes of picric acid to 1 litre of tepid boiled water is the strength painted on, and the parts should then be wrapped in lint wrung out in the same solution. Oiled silk is not suitable on account of its forming a water-bath and inducing maceration.

Leredde's **Silver Nitrate** treatment consists in promoting asepsis for twenty-four hours, then painting with a 1 in 40 solution of silver nitrate, to be afterwards strengthened, and after desiccation again applying rubber, and repeating painting, and so on.

Koppel for moist eczema suggests :—

℞ Cutol (Aluminium Borotannate)	4·0	Olive Oil Lanolin	10·0 q. s. ad 40·0

REFERENCES.—[1] "Brit. Med. Journ.," Sept. 10, 1898 ; [2] "Amer. Med. Assoc.," April 16, 1898 ; [3] "Chicago Clin. Rev.," Sept., 1897 ; [4] "La Méd. mod.," No. 4, p. 25, 1898 ; [5] "Montreal Med. Journ.,' April, 1898 ; [6] "Soc. de thérap.," Paris, Feb. 23, 1898 ; [7] "Journ. de méd. de Bordeaux," No. 51, 1897 ; [8] "Thèse de Paris," No. 34, 1897.

ELEPHANTIASIS. *T. Colcott Fox, M.B.*

This old, fanciful and unscientific term is still used to denote a condition in which considerable augmentation of volume is set up by chronic inflammatory hard œdema. The lymphatic system seems to be chiefly involved, but perhaps the veins also take part.

E. Albert Weil,[1] after the failure of various treatments, adopted the **Galvanic Method** to reduce a huge *elephantiasic enlargement of both lower extremities in a very obese woman.* He began with the left leg only. Two metallic electrodes covered with chamois leather, 16 by 26 cm., were bent in the form of half cylinders, and were applied to the two ends of a diametral plane of the limb, so as to cover more than its lower half. These electrodes were connected with the negative pole of a constant current apparatus, whilst the positive electrode of 10 by 12 cm. was placed on the neck. Séance of quarter of an hour; 20 ma.; then compression with a bandage. Then every two days or so the treatment was carried out, the strength of the current being gradually increased to 30, 50, and 60 ma., and then kept between 40 and 60 ma. The séances lasted ten to fifteen minutes. After a time an elastic was substituted for the ordinary bandage, and both legs were treated. The limbs steadily decreased in size, and the hardness of the lower parts disappeared in very great measure, so that the patient could get about comfortably, and she was practically cured. The treatment was commenced on May 25, 1897, and was continued every two or three days until August 12, and from September 18 until October 20.

This treatment was recommended in 1824 by Alard, and employed in 1877 by Beard and Rockwell, but its efficacy was demonstrated in greatest measure by Silva da Araujo and Moncorvo in Brazil. These authors recommended séances of galvanisation, followed by an equal duration of faradisation, with compression in the intervals.

Weil thinks the treatment contracts the lymphatic vessels and promotes the circulation of lymph, which sweeps away obstacles obstructing the great trunks, or develops a collateral lymph circulation.

We have in galvanism, then, a very useful method of treatment for certain œdemas arising apart from heart or kidney trouble. The difficulty of controlling such elephantiasic œdema by compression, etc., is well known.

REFERENCE.—[1] "La France méd.," June 24, 1898.

EMBRYOTOMY. (See "Labour.")

EMPYEMA. *Priestley Leech, M.D., F.R.C.S.*

TREATMENT.—S. A. Adams[1] recommends the treatment of empyema by irrigation, by submersion in water or some weak antiseptic solution.

He says: (1,) It is simpler, cleaner and easier and in the ten to fifteen minutes that the patient is in the bath he will be washed out from two hundred to three hundred times—not three or four times; (2,) Much economy is effected in dressings, as by removing the thickened matter from the pleural surfaces there will be less irritation and the production of much less pus; (3,) The baths improve the general condition of the patient, causing better metabolism. Fresh water was constantly used, but as the pus and other products are heavier than water they fall to the bottom of the tub while the upper portion of the water remains unpolluted.

The patient is placed in a bath of boiled water, as in the Brand method, and the temperature is kept at 100° F. by adding warm water from time to time. An opening of sufficient size to permit the egress and ingress of water must be made in the chest wall. With every inspiration the water runs into the chest, and with every expiration it returns, laden with pus which sinks to the bottom. The entire body is kept under water until expiration expels clear fluid, the time varying from ten to twenty minutes.

In the case reported at first a bath was given daily, and then every other day. If an antiseptic is used care must be taken that it is not easily absorbable.

REFERENCE.—[1]Epit. "Brit. Med. Journ.," July 30, 1898.

EPILEPSY. *Græme M. Hammond, M.D., New York.*

Tekontief[1] reports the case of a boy, ten years old, who had suffered severely with epilepsy for two years. He had from fifteen to twenty fits a day, his mind was notably enfeebled, and there was muscular paresis. He was treated with **Bechterew's Preparation**:—

℞ Infus. of Adonis Ver.	grs. 2,700	Potassium Bromide	grs. 60
Codeine	grs. 6		

The boy took from 5 to 7 tablespoonfuls daily at first, and in a few weeks the amount of adonis was doubled. The attacks diminished in number and severity, and finally ceased altogether. His mental and bodily condition became normal again.

De Cesare[2] makes use of the following preparation of adonis vernalis:—

Adonis Vernalis infused in 12 drachms of water; to this is added 75 grains of **Bromide of Potassium**; $\frac{3}{4}$ of a grain of **Codeine**; 4

drachms of syrup; and 2½ ounces of water. One half of this is to be taken in the morning, the other half at bedtime. Good results have been obtained upon eight patients during eight weeks, in that the convulsions ceased in four cases, and the remaining patients noticed only vertigo.

The writer would call the reader's attention to the fact that in both these prescriptions bromide is a conspicuous ingredient, and therefore the beneficial effect of the adonis vernalis is purely speculative. It is not at all improbable that the same formulæ would have been equally efficacious if the adonis had been omitted. The report is also premature, as none of the cases are stated to have been under observation long enough to render the results trustworthy. In the writer's hands adonis vernalis, when used alone, has proved to be of little value.

Gilineau [3] gives some pertinent suggestions relative to the hygienic treatment of epilepsy. The patient should be removed to the country, if possible, as there is less noise, life is less exciting, and the air is much purer. He should not live at the seaside, as attacks often become more frequent there. The most suitable occupation is that of a farmer. The patient must avoid crowds, the theatre, and long ceremonies in a church, as these tend to excite the emotions and interfere with the tranquil existence which is so absolutely necessary. The clothing should be warm, and flannel should be worn next the skin. Lastly, he should go to bed early, and at regular hours every evening.

The writer agrees with these suggestions fully, but would add as factors equally important, the employment of the **Cool Douche Bath** night and morning, to be followed by brisk rubbing with a rough towel; systematic but moderate out-door exercise; strict attention to the diet, in which the nitrogenous foods are reduced to a minimum compatible with nutrition, and the satisfactory regulation of the bowels.

It has been definitely ascertained that epileptic seizures are frequently preceded and accompanied by increased toxicity of the blood, urine, and gastric juice.

Cubitto [4] has recently made the further observation that the sweat of epileptics has a correspondingly increased toxicity about the time of the paroxysm. He therefore employs the **Hot-Air Bath** with the purpose of eliminating the toxins through the activity of the sweat glands. He has given this method an extensive trial, and states he is convinced it is an excellent means of preventing and interrupting attacks.

Stockwell reports a severe case of epilepsy that was greatly benefited by the fluid extract of **Horse-Nettle.** The best result was obtained from the fluid extract of the root as prepared by Parke, Davis & Co. The patient was a little over three years old, and had from twenty-five to thirty paroxysms each day. He was at first treated with an infusion of the berries and the root, but though this preparation diminished the number of attacks, it did not completely arrest them. The fluid extract of the root was then used with the most gratifying result. After taking it for a month the patient's attacks ceased, but the remedy was continued for three months longer. At the time of reporting the case thirteen months had passed without a single seizure. It is advised to begin with ½-drachm doses, and to increase the dose according to the constitutional effects desired. In the case under consideration the maximum dose reached was about an ounce.

REFERENCES.—[1] "New York Med. Journ.," Feb. 26, 1898; [2] "Amer. Journ. of Med. Sci.," Mar., 1898; [3] "Treatment," Apl. 28, 1898; [4] "Med. Age," Aug. 25, 1897.

EPISTAXIS. *R. Lake, F.R.C.S.*

Hæmorrhage from the nose should never be treated by plugging the *posterior* nares; the bleeding spot is almost invariably at the junction of the skin and mucous membrane on the septum. If, for want of caustic, plugging must be resorted to, a strip of antiseptic gauze is to be carefully packed in through the *anterior* naris. The **Galvano-cautery** to the spot before mentioned, or even **Chromic** or **Trichloracetic Acid,** will permanently control the bleeding. The receipts given should only be used by patients who are liable to attacks when away from medical aid.—*Vide* p. 215, 1898.

In addition to the remedies mentioned above we may add **Hydrogen Peroxide,** or Gleason's[1] method of plugging the nose with absorbent wool soaked in a bland oil.

TREATMENT[2]:—

℞	Benzoic Acid Tannic Acid		Carbolic Acid Collodion	āā 1 part 20 parts

M. To be applied.

As a snuff, Rendu prescribes the following:—

℞	Antipyrine Tannin	0·05 1	Pulv. Sacch. alb.	10

M. Snuff several times daily.

Hutchinson[3] has never found placing the hands and feet in very hot water fail to stop the bleeding.

Gelatin is recommended as an injection, and is said by Carnot[4] to rapidly arrest bleeding.

REFERENCES.—[1] "Laryngoscope," March, 1898; [2] "Med. Record," Feb. 5, 1898; [3] "Internat. Cent. f. Laryng.," No. 5, 1898; [4] "Presse méd.," Sept. 8, 1897.

EPITHELIOMA. *T. Colcott Fox, M.B.*

In the "Semaine Médicale" for May 5, 1897, Cerny and Trunecek, of Prague, described their experiments with **Arsenious Acid** in the treatment of epithelioma. They found it acted best dissolved in equal parts of ethylic alcohol and distilled water. The arsenious acid dissolves imperfectly and is apt to sink to the bottom. It is applied to superficial and ulcerating growths. The parts are cleansed thoroughly and made to bleed slightly by rubbing or even scarification, for the presence of fresh blood is essential. The application is then painted day by day over the growth and left exposed without dressing. The pain is usually bearable. Hermet says evaporating the water and alcohol by Richardson's spray is essential. A slough soon forms, and the painting is continued until a line of demarcation shows that the whole diseased area is necrotic and separating. After removal of the slough the painting is continued until the slough produced is a thin, yellowish, easily removable film, and not the dark adherent mass of necrosed carcinoma.

The strength of the arsenious paint is at first 1 in 150 (75 parts of alcohol and 75 of water), and as the slough gets thicker the strength must be increased to 1 in 100 or 1 in 80. The resulting ulcer is treated according to ordinary methods. This preparation seems to be a selective caustic, and never causes general poisoning.

In the last year a number of writers have reported cases successfully treated by this method.

EXANTHEMATA. (See "Serum Exanthemata" and "Sweat Eruptions.")

EXOPHTHALMIC GOITRE. *R. Lake, F.R.C.S.*

There is small doubt that under this name, at least two separate forms of disease are classed, and from this cause we are confronted with such different opinions as to the advisability of operative treatment. This is not the place to discuss matters not, to some extent, proven, so one contents oneself with this observation.

As an example of the class of case which appears to be suitable for excision of a portion of the gland, Martin[1] showed five cases on which he had operated with marked success. The symptoms in these were headache, sleeplessness, cardiac palpitation, and in two

cases, exophthalmos. The absence of protrusion of the eyeballs is not conclusive of the disease being not Graves's. In fact, writers, as Hector Mackenzie, have shown this.

Doyen[2] is in favour of removal of the bulk of the gland; he quotes a case in which, after a cure was established by this operation, the patient, on her own initiative, took sheep's thyroids, and all the symptoms recurred, disappearing, however, on the withdrawal of the drug.

Pean,[3] Poucet,[4] Chauffard and Quénu,[5] have all performed resection of the cervical sympathetic. The first obtained relief of the pressure symptoms, but not of the nervous. The second describes benefit in nine cases. The two latter, an absolutely negative result.

Eshner[6] and Jonnesco,[7] on the contrary, believe total and bilateral section of the sympathetic to be the best operation, and to give lasting results.

And Booth[8] reports favourably on resection of the gland. He extirpated part of the gland in eight cases, with five cured, one death, one improved, and one negative result. He says, after operation the symptoms disappear in the following order: First, the goitre diminishes; next, the nerve symptoms; and the exophthalmos last.

Reverting to section of the sympathetic, Jaboulay[9] himself reports a death among the eleven operations he has performed, though this appears to have been unconnected with the operation. And he makes the following important observations: That although the operation of "*sympathicotomie*" is not so directly indicated in cases with goitre as in those without, yet the removal of the superior ganglion renders the subsequent thyroidectomy less serious an undertaking.

Pathology.—Edmunds,[10] from experiments on monkeys, concludes: (1,) The typical changes found in enlarged thyroids in Graves's disease are of the nature of a compensatory hypertrophy; (2,) The parathyroids of dogs do as much to save them from acute myxœdema as the thyroids; (3,) Extract of sheep's thyroids, though relieving symptoms, will not save the lives of thyroidless monkeys; (4,) A parathyroid will never develop into a thyroid.

REFERENCES.—[1] "Philad. Polyclin.," Oct. 23, 1897; [2] "Presse méd.," July 28, 1897; [3] Ibid., Aug. 4, 1897; [4] Ibid., July 28, 1897; [5] Ibid., July 3, 1897; [6] "Inter. Med. Mag.," April, 1898; [7] "Presse méd.," Oct. 23, 1897; [8] "Med. Rec.," vol. liv., No. 7; [9] "Presse méd.," Feb. 12, 1898; [10] "Journ. Path. and Bact.," Jan., 1898.

EYE (Removal of). *William Oliver Moore, M.D., New York.*

Insertion of Artificial Globe into Tenon's Capsule.—Morton[1] describes this operation as follows: Under an anæsthetic a circular incision is made in the conjunctiva, close to the corneal limbus. The

internal rectus is dissected free from surrounding tissue up to its attachment to the globe, and held by a pair of advancement forceps, after which it is cut close to the sclera. A double needle *cat-gut suture* is passed from within outward, enclosing the central bundle of the tendon, and tied on its external surface. The ends of the suture are laid to the nasal side. The external, superior, and inferior recti are treated in a similar manner. The oblique muscles are cut, but no suture is used. The globe is removed after section of the nerves; after bleeding stops, the *glass sphere* is placed in the cavity previously occupied by the eyeball. Great care is now taken to tie the sutures in such a way that the tendons assume the same position they occupied in the living eye. The catgut sutures and sphere are now covered over by conjunctiva, which is held by sutures of Chinese silk. It is applicable in cases where the eye is atrophic and unfit for Mules' operation, and in cases where the globe is badly lacerated from severe injury.

REFERENCE.—[1] "New York Med. Journ.," Oct. 30, 1897.

EYE (Wounds of). *William Oliver Moore, M.D., New York.*

Antiseptic Treatment of Eye Wounds.—McGillivray[1] says the modifications in antiseptic treatment of eye wounds consist chiefly in reducing the strength of the antiseptic solutions used for douching purposes, and the adoption of heat sterilisation for instruments and dressings. He was in favour of a sterilised physiological saline solution, as it tended to keep the tissues as nearly as possible in their physiological condition; whereas, antiseptic solutions, however weak, irritated and benumbed the cut tissue, and thus impaired their natural immunity. He says his motto in dealing with the conjunctiva is, "Let sleeping dogs lie."

[At a discussion of this subject at the sixty-fifth annual meeting of the British Medical Association, 1897, in Montreal, the general opinion seemed to prevail that cleanliness was the prime factor, and that the thorough cleansing of the conjunctival *cul-de-sac* by douching was sufficient. Irrigation of the anterior chamber was not favoured, and, in fact, many of the former methods of "scrubbing" the eyelids and other forced procedures were discountenanced.—ED.]

Dalen[2] (Stockholm), in a study of the disinfection of the normal conjunctiva in thirty patients, comparing solutions of corrosive sublimate and common salt used to irrigate the conjunctiva, found that they were equally ineffective in freeing the conjunctiva of bacteria. He also found that bacteria would flourish and multiply as well under a dressing moistened with sublimate as under a dry dressing

Eyre[3] concludes that the conjunctival sac frequently contains micro-organisms, extremely varied in character, which may or may not be pathogenic. The lower fornix of the lid is more apt to be the nidus of bacteria. The sterility of the conjunctival sac is due to the mechanical flushing of its mucous surface by the lachrymal secretion.

REFERENCES.—[1] "Brit. Med. Journ.," Mar. 10, 1898; [2] "Nordist. Medic. Arch.," 1897, Heft 3; [3] "Ann. of Ophth.," Oct., 1897.

EYELIDS (Diseases of). *William Oliver Moore, M.D., New York.*

Blepharitis has been treated by Fage[1] with solutions of **Picric Acid**, in the strength of 5, 8, and 10 parts to the 1,000; and in some instances, instead of water, equal parts of glycerin and water have been used, to make the application adhere better to the ciliary border. The lids must be carefully cleaned, and the crusts removed by bathing them in warm solutions of **Boric Acid** or **Ichthyol.** The application of picric acid is repeated every second day. The application does not irritate the skin or the conjunctiva, and the staining of the tissue is so slight as to be hardly noticeable.

Landolt[2] suggests for the *pruritus of blepharitis* the following:—

℞ Neutral Lead Acetate gr. 3 | White Vaseline gr. 90
Cocaine Hydrochlor. gr. 4½ |

M. Sig.—Apply to edges of eyelid.

Dacorides[3] has used with satisfaction, **Ichthyol** with **Water,** equal parts; weak emulsion, 3 parts **Ichthyol** to 7 parts **Water**; or strong ointment, **Ichthyol** 5 parts, **Vaseline** 100 parts; or weak ointment, **Ichthyol** 5 parts, **Vaseline** 200 parts. The ointments are better borne than the solutions.

Scrofulous Blepharitis is treated by Sehlen[4] with 1 part of **Ichthyol; Powdered Starch** and **Zinc Oxide,** 20 parts; **Vaseline,** 50 parts. This ointment to be applied to the lid edges night and morning.

Black Eye.—To prevent ecchymosis of the eye-lid after injuries, paint the part with the following solution, suggested by Da Costa[5]: **Mucilage of Acacia,** ½ oz.; **Tincture of Capsicum,** 1 drachm; **Glycerin** to make an ounce. In applying this mixture avoid any abrasion of the skin.

Furuncles are treated by Landolt and Gigax[6] with the following:—

℞ Tr. Camphoræ ♏ xv | Aq. Rosæ āā ℥ijss
Sulphuris Precip. gr. xv | Gum. Acaciæ gr. iij
Aq. Calcis |

M. Sig.—Apply.

Ectropion of the Lower Lid.—Robertson[7] says, "The operation consists in making an incision through the skin of the outer third of

the lower lid, parallel to and about a line (2 mm.) distant from its margin. When the incision has been carried as far as the outer canthus the knife is directed a little more upwards, and the incision continued for about half-an-inch. It is then carried horizontally outwards for about 3 lines (6 mm.) and, lastly, downwards and inwards,

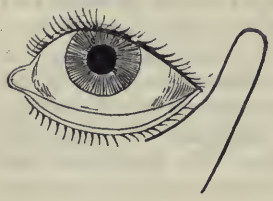


Fig. 16.

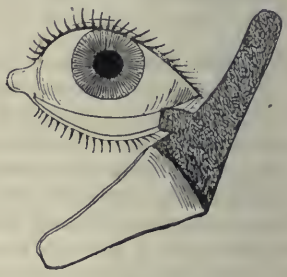


Fig. 17.

nearly parallel to the upward incision, but diverging a little from it below, for the distance of about an inch-and-a-quarter. *Fig.* 16 indicates the course of the incision.

"The flap of skin thus outlined is then dissected from subjacent parts and reflected back, as shown in *Fig.* 17.

"Next, a suitable V-shaped portion of the whole substance of the lower lid is removed at a little distance (say 3 mm.) from the outer canthus. The 'strap' of skin which had been reflected is now drawn upwards and outwards till the edge of the lid is brought up to its natural position, and the skin which it then overlaps is outlined by bringing the knife along the edge of the strap, and the portion thus outlined dissected off. Lastly, the 'strap' is replaced and fixed in position by several sutures, as seen in *Fig.* 18.

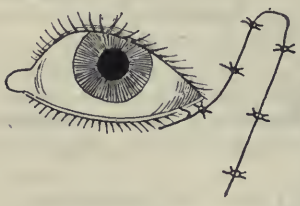


Fig. 18.

"It is advisable not to remove a large V-shaped portion of the lid at first, as a little more can easily be snipped away if on drawing the lid into position by means of the 'strap' a puckering of the edge of the lid indicates that too little has been removed.

"This operation is particularly useful in senile ectropion, or in eversion of the lid from long-continued palpebral conjunctivitis, when the free edge of the lid has by traction been elongated and the

curvature of the tarsal cartilage altered, but it may be advantageously employed in other forms of ectropion also.

"The chief advantages I have found in this method of operating are: (1,) That the exact amount of lid tissue that should be removed is easily ascertained; (2,) That by means of the strap of skin very efficient and permanent traction on the lower lid is obtained, thus bringing it and fixing it in proper position.

"Instead of removing the skin that lies under the strap when it is drawn up so as to bring the lid into position, a small portion of the extremity of the strap might be cut off, and the effect would be similar. But I prefer the method described, giving, as it does, a larger surface on which to fix the strap."

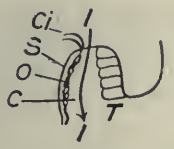


Fig. 19.—*Ci*, Eye-lashes. *S* Skin. *O*, Orbicularis. *II*, Incision in the lower lid. *T*, Tarsus. *C*, Cellular tissue.

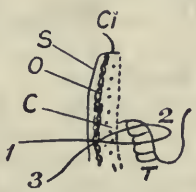


Fig. 20.—*Ci*, Eye-lashes. *S*, Skin. *C*, Connective tissue. *O*, Orbicularis. *T*, Tarsus. 1, 2, 3, Suture.

Prof. H. True,[8] of Montpellier, contributes a new method of operating (*Figs.* 19—24), so as to make the lids retain the artificial eye when it has begun to be expelled by cicatricial contraction of the interpalpebral space. He explains the cicatricial contraction as due to irritation of the mucous membrane by the artificial eye. To the same thing he assigns the increased lacrymation and catarrhal secretions which accumulate and linger in the depression that receives the artificial eye. Cicatricial narrowing of the pocket, which contains these inflammatory exudates, gradually throws the lids out, and finally permits the artificial eye also to escape.

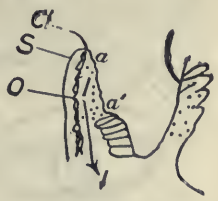


Fig. 21.—*Ci*, Ciliæ. *S*, Skin. *O*, Orbicularis. *II*, Incision. *a a'*, Cicatricial tissue.

It is to relieve this condition that the author has devised his new operation. Splitting the lower lid into two laminæ, the mucous membrane and the tarsus constituting the inner lamina and the skin orbicularis and connective tissue the outer, the latter is pulled up above the upper margin of the former, so that the upper

margin of the outer lamina forms a convex curve and the upper margin of the inner lamina a concave curve, from the inner to the outer canthus, the median distance between the two margins being about 1 ctm. If this distance happens to be just right, and the two laminæ are sutured together thus, and the interval between the two margins is allowed to cicatrise, enough contraction will take place to cause compensatory entropion approximately sufficient to overcome the ectropion to be corrected, and will give besides a flange-border just enough turned in to hold the artificial eye.

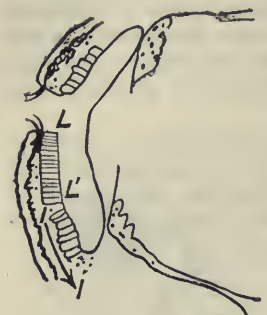


Fig. 22.—*L L*, Skin-flap from temporal region.

But if there is danger of this cicatrix contracting too much, another step is taken. A skin-flap is dissected up external to the outer canthus from the temporal portion of the skin of the face, which is pushed through a skin-commissure at the outer canthus, and made to cover the denuded portion of the outer palpebral lamina, so that the skin-surface is directed backward toward the orbital surface of the artificial eye. In this position it is sutured, and held down centrally by a suture passing outward through the anterior skin-surface of the palpebral lamina.

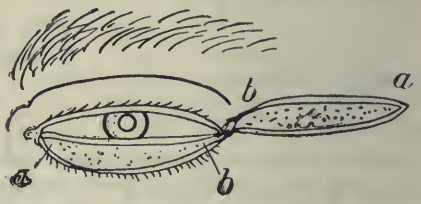


Fig. 23.—*a b*, Flap of skin brought in from temporal region.

Fig. 24.—*a b*, Line of sutures in closing temporal incision.

The last step consists in bringing together, by sutures, the skin from which the skin-flap had been cut. The new interior surface of the lower lid forms a good cushion for the artificial eye.

Trachoma.—Nesnamoff[9] uses **Iodine** dissolved in either glycerin or in white vaseline as an application for trachoma, as in these it penetrates the tissues best without irritation. In mild cases the solution was used in a 1 per cent. solution; if the conjunctiva is

moist and pulpy, the treatment is begun with ½ per cent; if the infiltration is more uniform, from 2 to 3 per cent. solutions are used, being made gradually weaker as the disease progresses. Applications to cases of pannus clear the corneal infiltration.

Everbusch[10] has given up all operative treatment in trachoma except **Canthoplasty**, and uses a solution of silver nitrate, dropping it on the granulated surface; later he uses yellow oxide of mercury ointment, having the lids massaged; he also uses iodine tincture.

Biélorsky,[11] after anæsthesia by cocaine, everts the lid and crushes the granulations with the nail of the right thumb or index finger; the mucous membrane is then rubbed with powdered **Sozoiodol-zinc**, and instillations of **Boric Acid** and **Cocaine** are prescribed.

Schulhof[12] quotes some striking figures as to the frequency of trachoma: In 1895, in thirty Austrian counties, there were nearly 30,000 sufferers; while in the Russian army in 1896 the number of victims reached the almost incredible proportion of 62 per cent. He says *trachoma* is an *infectious* disease which can be spread by contagion; its appearance is favoured by special conditions, such as race, locality, general nutrition, and occupation. After mentioning the usual older remedies, he says the following deserve a trial, **Guaiacol-glycerin, Ichthyol, Sozoiodol** preparations, and **Electrolysis.**

Prophylaxis, by regulating sanitary conditions, and thus preventing the spread from patient to patient, is the most important.

Lester[13] says, in *cicatrising trachoma* with pannus the use of a solution of **Iodine** in liquid vaseline is very effectual; these may be used from ½ to 2 per cent., and applied to the conjunctiva by a cotton-tipped toothpick. **Formic Aldehyde** in ½, 1, and even 2 per cent. alcoholic solutions, may be used; this must be preceded by a local anæsthetic.

In *simple trachoma*, solutions of **Mercuric Bi-chloride**, in strengths varying from 1 to 500 to 1 to 2,000, are advised, **Holocaine** having been first used to allay the pain of the application. These applications should be made every other day, and the patient directed to use a solution of 1 to 10,000 four and five times a day.

In *follicular trachoma*, the medicinal treatment is not sufficient, but the ideal treatment will be the "expression operation."

Snell[14] (Sheffield) finds **Electrolysis** of benefit in trachoma. The negative pole is applied to the cheek, and the positive to the everted surface of the lid; the latter electrode is a curved, flattened platinum instrument which is passed over the conjunctival surface. The strength of the current used is seldom more than three milli-ampères, and should not exceed five milliampères. In spite of

cocaine, the application is painful; a whitish, frothy trail follows the platinum point.

Congenital Ptosis.—Wolff[15] makes an incision through the skin, 2 ctm. in length, at the upper edge of the tarsus; then dissecting up the skin a distance of 3 ctm. upwards, and almost to the free border of the lid downward, exposing the orbicularis. In the middle of this field, at the top of the convex border of the tarsus, seize with forceps a fold of the orbicularis 1 ctm. wide, containing, as well, the tendon of the levator palpebræ, which is inserted in the middle of the anterior surface of the tarsal cartilage. This fold is separated on each side by a vertical cut, and stretched to make sure that the tendon is well raised by the forceps. Two strabismus hooks are passed under it, one upwards and the other downwards to the insertion of the tendon. Two cat-gut sutures are passed (having a double needle) horizontally through the fold at a point as far above the insertion of the tendon as corresponds to the difference in height of the two palpebral fissures, that is to say, to the amount of the ptosis. These are tied, and the fold is cut just below the knots; then the four needles are passed through the end of the tendon attached to the tarsus at the very point of its insertion, and the sutures firmly tied. The skin is then sewed; thus the orbicular muscle is weakened at the same time the levator is shortened, as much as the ptosis demands.

Wilder,[16] for complete paralytic ptosis, makes an incision one inch and a half in length, so that the scar will fall in the line of the eyebrow. The lower lip of this incision is drawn down, and the skin and muscle dissected from the fascia down to the tarsus. Two sutures of fine sterilised cat-gut or silk, armed at each end by a curved needle, are then passed in the following manner :—

The first needle is introduced deep enough into the tarsus to secure a firm hold, at a point about the junction of the outer and middle third, and a little distance from its convex edge. It is then drawn through, and with it several gathering stitches are taken in the tarso-orbital fascia, after which the needle is made to pass through the muscle and connective tissue of the upper lip of the wound. The other needle on the same suture follows a parallel course in the same manner, entering the tarsus about three millimètres from the point of entrance of the first, then gathering the fascia into small folds and emerging in the tissue alone, thus making a loop by which the lid may be drawn up. The *second* suture is passed in the same way, making a loop at the juncture of the middle and inner third of the tarsus. The requisite elevation of the lid may be secured by drawing the loops and tying the sutures, which are to be buried in the wound.

The lower lip of the wound is united by sutures to the upper; the scar is hidden by the eye-brow.

Sattler[17] reports the cases of a father and four sons, all with ptosis and epicanthus; the father had myopic astigmatism, the sons were hypermetropic. The levator palpebræ in each case was absent or very weak.

REFERENCES.—[1] "Lyon méd.," Jan. 9, 1898; [2] "Gaz. hebdom. de méd. et de chir.," Feb., 1898; [3] Ibid., May, 1897; [4] "Clin. Ophthal.," No. 3, 1897; [5] "Med. Record," Aug. 7, 1897; [6] Ibid., May 19, 1898; [7] "Brit. Med. Journ.," June 11, 1898; [8] "Archiv. d'ophth.," No. 10, 1897, and "Amer. Med. and Surg. Bull.," Feb. 10, 1898; [9] "Vratch," No. 17, 1897; [10] "Zehender's Klin. Monats.," xxxiv.; [11] "Amer. Med. and Surg. Bull.," Nov. 25, 1897; [12] "Wien. med. Presse," Nos. 24-25, 1898; [13] "New York Med. Journ.," June 4, 1898; [14] "Ophth. Rev.," p. 202, 1897; [15] "Arch für Augenh.," vol. xxxiii.; [16] "Ann. of Ophth.," No. 1, 1898; [17] "New York Med. Rec.," June 26, 1897.

FAVUS. (See "Hair.")

FEVERS. (See also Special Articles.)

W. Gilman Thompson, M.D., New York.

The general management of the commoner fevers is discussed by John Biernacki,[1] who gives many practical details, and who is an enthusiast in the use of diphtheritic antitoxin, and of cold bathing in hyperpyrexia.

A classification of fevers by A. Crombie will be found under "Tropical Fevers" (*infra.*).

Albert Robin[2] contributes an interesting paper upon the general therapeutics of the infectious fevers, in which he discusses the value of internal antiseptics, etc.

Tropical Fevers. — The Unclassified Fevers of the Tropics were discussed at the British Medical Association meeting in July, 1898, by Dr. A. Crombie, Majors Richard Baker and Davidson, Col. Arnott, Capt. M. L. Hughes, and Drs. Hayman and Causland.

Dr. A. Crombie[3] offered the following:—

PROVISIONAL SCHEME OF THE UNCLASSIFIED FEVERS OF INDIA.

I.—*Non-specific fevers of doubtful causation, probably climatic:*

(*a*,) Ephemeral fever.

(*b*,) Common continued fever.

(1,) Febricula, variety, nakra or nasha fever.

(2,) Simple continued fever.

(3,) Ardent fever.

(*c*,) Thermic fever, siriasis, heat apoplexy.

(*d*,) "Low Fever."

II.—*Specific fevers of known or unknown origin :*

(1,) Aphthous fever.
(2,) "Milk sickness."
(3,) Urban continued fever.
(4,) Enteric fever.
(5,) Non-malarial remittent fever.
(6,) Malta fever.
(7,) Double continued fever (Manson).
(8,) Relapsing fever.
(9,) Acute febrile icterus.
(10,) Yellow fever.
(11,) Beri-beri.
(12,) Cerebro-spinal fever.
(13,) Typhus.

III.—*Malarial fevers :*

Intermittent (quotidian, tertian, quartan).
Remittent or continued malarial fever (Laveran)

IV.—*Fevers of compound origin :*

(1,) Typhomalarial fever.
(2,) Kala-azar.
(3,) Hæmoglobinuric fever (?).

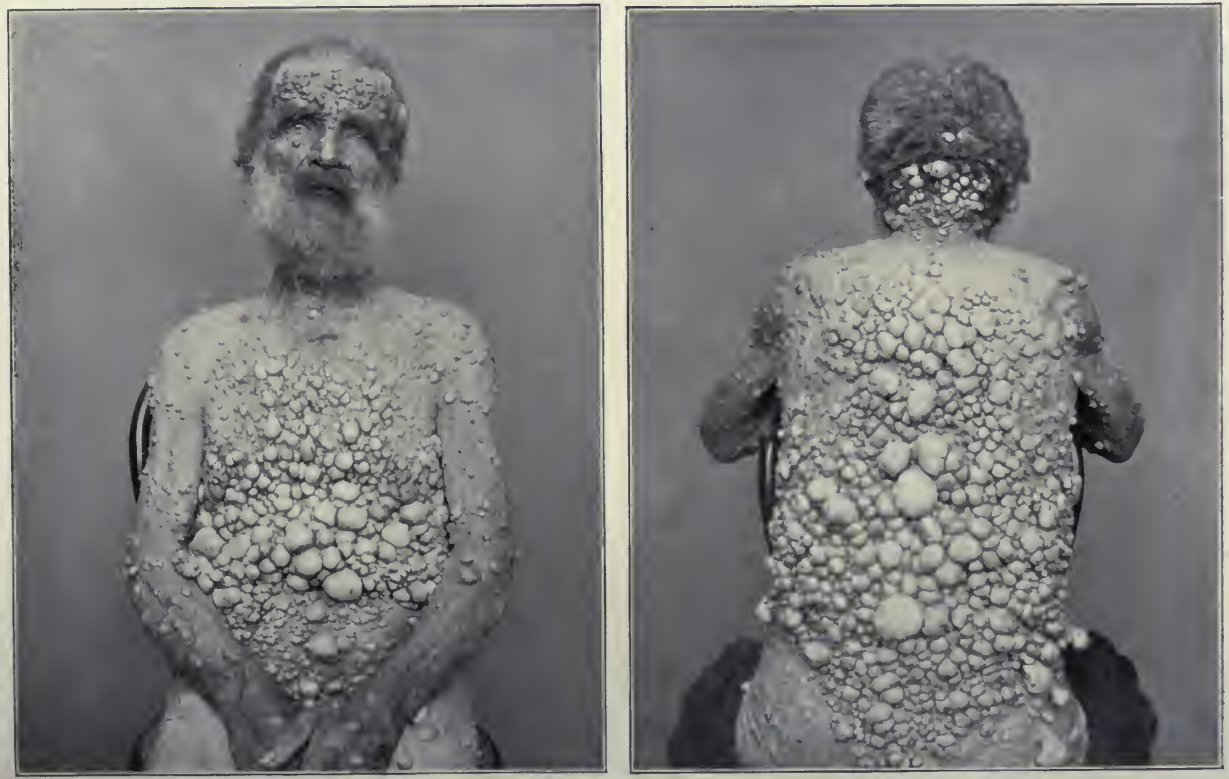
It is difficult to see why the author cited should omit such a fever as *la grippe* from this list, and include "typhomalarial" fever, which has long since, in America at least, been proved to be nothing but a mixed infection, *i.e.*, due to the concurrence of typhoid bacilli and Laveran's plasmodium in the system, and not in any sense a hybrid disease deserving of a special and misleading name like "typhomalaria." Such cases of mixed infection are very common in the Southern States, and hundreds of them have returned from Cuba since the Spanish-American war.

Several of the simple fevers included in this list are moreover to be properly described as cases of mild ptomaine poisoning : such are ephemeral fever, the brief cases of simple continued fever, etc., and are very doubtfully climatic, for they are as common in New York as in India.

REFERENCES.—[1] "Med. Times and Hosp. Gaz.," Sept. 4, 1897, p. 25 ; [2] "Bull. gén. de thérap.," Nos. 1–5, 1897 ; [3] "Brit. Med. Journ.," Sept. 24, 1898, p. 862.

FIBROMATA. *T. Colcott Fox, M.B.*

Thanks to the courtesy of Dr. David Hardie, of Brisbane, we are enabled to reproduce two striking photographs (*Plate III*), taken by Dr. Thomson, of a remarkable case published in the "Australian Med. Gaz.," February, 1897. The case resembles very closely that



Fibromata.

of a man named Gray, who was, until a few years ago, well-known in London, and who died in the Greenwich Infirmary. Mr. Jonathan Hutchinson and Dr. Radcliffe-Crocker have published illustrations of this man. In Dr. Hardie's case some of the growths were rounded, firm and tough, others were elastic; some appeared loose and moveable, rolling freely under the skin; others again were tense and hard. Very many were pedunculated.

Clinically, a distinction is made between the *generalised* cases and the *solitary pendulous* cases, though the term solitary is not to be enforced too strictly. The solitary form is generally, more or less, rounded, but a curious flattened form, known as *dermatolysis*, is met with forming large dewlaps or aprons which fall down over the surface of the body. Besnier has divided skin fibromata into those arising from the skin, either in the superficial or profound layers, and those arising from the subcutaneous connective tissue (hypoderm), and to these differences of origin correspond clinical types, but there is no very hard and fast line to be drawn. Those of superficial origin are apt to be soft and pendulous. Recklinghausen raised some years ago a very interesting point in the pathological anatomy, which is still being subjected to proof. He said the soft, solitary tumours had their origin along the lymphatics, whilst the generalised forms originated about the nerves. Recklinghausen's proposition has received a considerable amount of support, but some observers have failed to detect any connection with the nerves.

Feindel[1] describes a case of sarcoma developing in a subject affected with typical generalised neurofibromatosis. A man aged seventy-four years, with feeble muscular development, was admitted for a sarcoma of the right calf. On his back was a diffuse fibromatosis of all the posterior wall of the thorax, and there were numerous cutaneous fibromata of the usual kind, but the connection with nerves could not be determined. As is common in such cases there were punctiform pigmentations, except on the face, and further an immense pigmented zone like a girdle round the trunk.

For recent studies of this affection, Feindel refers to Landosky's "Thèse de Paris," 1894; to the "Leçons de clinique méd," 1894–5 of Pierre Marie, and to Delore in the "Gaz. des hôpitaux," 1896.

REFERENCE.—[1] "Arch. génér. de méd.," p. 102, 1897.

FIBROMYOMA. *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Etiology.—It cannot be said that any advance has been made during the past twelve months in the elucidation of the causation of uterine myomata. In one of the most important communications on

myoma which have recently appeared, Bland Sutton[1] frankly admits ignorance as to their cause. The facts which we possess are: That myoma first occurs principally between the ages of thirty-five and forty-five; that it is most common in single and in nulliparous married women; that it is very rarely or never found in the case of women who have borne many children; that it is practically unknown among the lower animals. Beyond this, all is inference or speculation. The only inference that we shall here notice is that myomata arise in default of the normal function of the uterus, viz., pregnancy; and that the *modus operandi* may be that the periodic congestion of the uterus in preparation for this function expends itself, if continually thwarted, in pathological, irregular and permanent, instead of physiological, uniform and temporary, hypertrophy. After the menopause, when periodic congestion no longer occurs, the liability to the onset of myomata also ceases. The pathological revenge of defeated physiological purpose is not usually precipitate: twenty to thirty years of grace are allowed for response to the physiological call. The uterus that could not become pregnant, through under-development or through deficient ovarian activity, is commonly exempt. The uterus that could have become pregnant but has not done so, is the one that pays the penalty.

Pathology.—In the communications referred to, Bland Sutton has called attention to a form of myoma which has not hitherto been sufficiently distinguished, viz., the *cervical* myoma. Myomata of the body of the uterus have long been recognised in their three classical forms: intramural, subserous, and submucous. Cervical myomata present two varieties, the intracervical and the subserous. The intracervical may early become extruded in the form of a polypus with an elongated pedicle; in other cases it may expand the cervical canal, without dilating the os-externum, and ultimately attain a size which is limited only by the size of the true pelvis. It then presents on sagittal section a characteristic elliptical outline, and the expanded walls of the cervix extend like a thin capsule around it; the body of the uterus occupies the summit of the tumour.

The subserous variety also present a characteristic elliptical section, but their exterior is usually irregular or even tuberous; they are placed laterally to the uterus. The ovoid shape of cervical myomata is determined by the osseous boundaries of the true pelvis; when these tumours attain an antero-posterior diameter of four inches they completely occupy all the available space, and exert injurious pressure on the ureters, and especially on the urethra.

In the case of myomata of the body of the uterus, certain changes

take place in the endometrium, less marked, however, or even absent, when the myomata are subserous. There is generally glandular endometritis present, which may lead to the formation of an adenomatous polypus. In addition to this, whenever a tumour or a portion of it is submucous there is an interstitial as well as glandular endometritis, with thick-walled vessels and a greatly dilated capillary network. It is this vascular condition of the endometrium or a polypus which causes the hæmorrhage.

The risks to life incident on the presence of myomata are, still following Bland Sutton, hæmorrhage, septic infection, effects of impaction, malignancy, axial rotation, and intestinal obstruction.

The worst cases of *hæmorrhage* are those in which the tumour has become septic (gangrenous). The most familiar example of this is the partial extrusion of an intramural polypus, which is associated with almost continuous bleeding. *Infection* may be due to injury from the uterine sound or dirty dilators, or septic changes following miscarriage or labour, or to intestinal gases when bowel adheres to the tumour. Septicæmia may follow, or the infection may slowly spread to the tubes, giving rise to pyosalpinx. *Impaction* may occur with all varieties of myomata, and this complication is of great clinical importance.

"A solitary intramural myoma may be small enough to rest in the true pelvis without pressing unduly on the urethra or ureters. Presently it increases to such a point that the turgescence which precedes the menstrual flow will cause it to press the urethra against the symphysis pubis and cause retention of urine. When menstruation occurs the turgescence subsides, and the urethra is set free. Frequent recurrence of this pressure may permanently damage the bladder and kidneys. . . . It is an important fact to remember that, when a woman of thirty-five to forty-five seeks relief because she suffers from retention of urine for a few days before each menstrual period, it is almost a certainty that she has a myoma in her uterus."

Intestinal obstruction may arise in three ways: (1,) A pedunculated subserous myoma may entangle a loop of small intestine, and lead to fatal obstruction; (2,) A very large myoma, rising high in the abdomen, may rest upon the pelvic brim in such a way as to obstruct the sigmoid flexure; (3,) An impacted myoma may press upon the rectum and lead to obstinate constipation and chronic obstruction.

Diagnosis.—Few conditions present greater variations in the ease or difficulty with which they can be diagnosed, than myoma of the uterus. When classical signs and symptoms are present, nothing

could be easier: the history of pain, menorrhagia and metorrhagia, together with symptoms of pressure on bowel or bladder; the presence of a hard tumour, evidently connected with the uterus, as evidenced by the occurrence of rhythmical contractions and the passage of a sound into the uterus for a distance of 4 to 8 inches. Here we have a clinical picture admitting of only one interpretation. But when the tumour is soft and cystic; when the sound cannot be passed; when the connection of the tumour with the uterus cannot be made out with certainty; or when the uterus can be quite separately distinguished, as in the case of subserous or intra-ligamentous myomata; when menstruation is not increased in quantity; when the case is complicated by a history of pregnancy;—then diagnosis must often be deferred until operation settles it. And in such cases, owing to the contradictory nature of the evidence, inferences deduced by correct reasoning may lead to erroneous diagnosis, whilst an incorrect interpretation of facts may by a happy chance result in a correct conclusion. This view of the case is supported by the fact that diagnostic errors are sometimes made by those whose knowledge and experience are greatest. This is not the place to enter at length into the question of the diagnosis of myomata; suffice it to point out that modern experience confirms the necessity for reserve in diagnosis in many cases.

TREATMENT.—It may be said with truth that the burning question in gynæcology at the present time is the treatment of uterine myoma. The conservative school is well represented in the views expressed by the late Dr. Wallace,[2] of Liverpool, before the Carlisle meeting of the British Medical Association. He insisted that uterine fibroids had a trivial mortality compared with ovarian tumours in the times when both were left alone, or tapping only of the latter was undertaken. Death was almost invariable in ovarian cysts, but quite exceptional in fibroid tumours. The same law holds now, according to Dr. Wallace, but ovariotomy has stepped in, and the mortality has been reduced by over 90 per cent. On the other hand, supra-vaginal hysterectomy has increased the mortality of uterine fibroids. What the percentage has been we shall never know, but it has been great. According to another important statement of Dr. Wallace's, hæmorrhage alone does not demand extirpation by laparotomy. It can, in his opinion, always be checked. He has never seen a case succumb to it; but if accompanied by pain or inability for life's work, it may justify operation should the patient desire it, but would not justify the surgeon in recommending it.

We find, accordingly, medicinal measures advocated. **Thyroid**

Extract was recommended some time ago, and cases in which it has proved of benefit are reported by Polk[3] and Jouin.[4] The former, after mentioning the beneficial effect of thyroid extract on the metrorrhagia of fibroid tumours of the uterus, states that in several cases he has observed also not only a checking of the tumour's growth, but even a decided retrocession with amelioration of the local symptoms and improvement in the general health ; whilst Jouin declares the internal administration causes a marked reduction in size of fibroids, while pain, pressure, general weakness, and especially hæmorrhage are certainly relieved; also that this treatment causes a diminution of menorrhagia in women at the climacteric.

Boquet[5] gave **Iodide of Potassium** in a case of uterine fibroma, with a syphilitic history, with the result that not only did the syphilitic symptoms disappear, but the menorrhagia due to the fibroma was also cured. Encouraged by this result he gave **Iodide of Potassium** in the same doses administered in the same way to four other women suffering from fibroma with metrorrhagia, but absolutely free from syphilis. In all these cases the bleeding was stopped, pains ceased, and the size of the tumour was markedly diminished. Boquet suggests that iodide of potassium exerts a special effect on the genital organs of women, and he thinks that the drug might be tried not only in metrorrhagia connected with uterine fibroma, but also in hæmorrhagic metritis.

Inglis Parsons[6] reviews the whole question of the treatment of fibroids in a temperate spirit. He properly points out that in the very early stages medicinal measures may be tried ; he has found **Ergot** give the best results, administered in the form of the fresh B.P. liquid extract, given in drachm doses two or three times a day in chloroform water after food. In five cases he gave the thyroid extract a fair trial. Four of these were women of about the age of forty years, with old hard fibromata of many years' standing. No appreciable diminution in size followed after a three months' course, but in the fifth case there was a distinct reduction in size. This patient, a single woman, aged twenty-five years, had a large hard nodular fibromyoma almost filling the pelvis and dipping down into Douglas's pouch. The cervix was drawn up and pressed against the pubes. She suffered from morning sickness and attacks of retention which had to be relieved with a catheter. These symptoms disappeared after a three months' course of thyroid extract. The tumour distinctly diminished in size.

We must admit that in our experience neither ergot nor any other drug has proved really reliable. But after all, it is not over the question of the treatment of early myoma that differences of opinion

arise. All are agreed that some myomata never attain a large size, or even diminish ; and probably all are agreed that in the early stages a myoma is best left alone and watched. The real question at issue is the treatment of moderate-sized and large myomata. And here we may distinguish three schools : those that advocate the expectant treatment, waiting if haply the tumour may cease to grow or even diminish with the establishment of the menopause; the electrical school; and lastly the advanced surgical school.

The standpoint of the expectant school is that myomata do not threaten life in the great majority of cases ; the mortality of myoma left alone is much less than the mortality of hysterectomy. Inglis-Parsons quotes the following statement of the case by the late Thomas Keith : " I often ask myself the question, Does a mortality of 8 per cent justify an operation for a disease that as a rule has only a limited active life, that torments simply, and that only for a time, though of itself it rarely kills? The mortality of an ordinary uterine fibroid, if left alone, is nothing approaching a death-rate of 8 per cent. I doubt if the mortality of even the extreme cases exceed this. And, after all, the great difficulty is not in doing even the worst of these operations, but in knowing what are the cases in which it is right to advise those who trust themselves to us to run the risk of a dangerous operation with all its attendant miseries. Could we get the mortality down to 5 per cent. in the bad cases—and these only are the fit subjects—then one might advise interference with a more easy mind."

To this the reply of the advanced school is that in the first place the mortality of unoperated myoma is greater than is generally supposed ; and that, in the second place, we have to consider not only the danger to life, but also the impairment of usefulness. A condition that prevents a poor woman from earning a livelihood, or that entails a life of invalidism among those that are better off, may justify interference as much as a condition that threatens life. And here we may point out that the mortality of unoperated cases means practically the mortality of the less severe cases ; for the bad cases are nearly all operated upon sooner or later; and so the deaths which should be put down to the account of the disease are transferred to the account of the operation.

Electricity still has its adherents. Inglis-Parsons, (op. cit.) who claims that "80 per cent. of all cases can be treated with great benefit, without appreciable risk and without mutilation of the sexual organs," states the case for electricity as follows : " It has been urged against electricity that the tumour is not got rid of. If we once admit that some cases having no symptoms require no treatment, this argument

falls to the ground, because it admits that the presence of the tumour does not matter. The female pelvis, being adapted by nature to contain an enlarged pregnant uterus without interference with the general health, very well tolerates an enlargement from other causes.

"In suitable cases with electricity hæmorrhage can be stopped, the pressure symptoms and pain can be got rid of, and the tumour reduced in size, and this without the patient having to run any appreciable risk or suffer any mutilation of her sexual organs.

"Some cases are unsuitable, viz.: (1,) Fibrocystic tumours growing rapidly in young subjects; (2,) Old hard tumours composed chiefly of fibrous tissue; (3,) Associated disease of the tubes and ovaries; (4,) Very large tumours. With these cases the question of abdominal section must be faced when there are severe or urgent symptoms. I must say that with the help of electricity and other treatment already described I do not often find this necessary."

In the surgery of uterine myoma several points are worthy of notice as having claimed attention during the past twelve months. They are: (1,) The conservation of the ovaries; (2,) The waning of the operation of hysterectomy by means of the serre-nœud; (3,) The growing favour of the intra-peritoneal operation.

(1,) *Conservation of the Ovaries*—The plan of dealing with myoma by removal of the ovaries has undergone a *volte-face*: now, instead of taking away the healthy organs and leaving the tumour, the latter is removed and the ovaries are left. When oöphorectomy first began to give way to hysterectomy, it was apparently generally considered to be a matter of little importance whether the ovaries were left or not. But of late various operators have pleaded for the sparing of one or both ovaries. Howard Kelly[7] bases his plea on the evidence recently put forth as to the value of the ovaries apart from the processes of ovulation and menstruation; and on the well-known fact that the sudden artificial induction of the menopause is often a source of extreme and lasting discomforts. He gives a table of cases of hysterectomy in which at least one ovary was left, showing the later results: in no single instance had the operation given rise to any of the aggravating symptoms so commonly or even invariably associated with the artificially-induced menopause. Bland-Sutton (loc. cit.), in advocating that one or both ovaries be left, says that apart from the physiological advantage, it is safer and more convenient to secure the ovarian artery in the mesosalpinx on the uterine side of the ovary.

(2,) *The Disuse of the Serre-Nœud.*—Bland-Sutton traces the discarding of the serre-nœud to Baer's introduction of the plan of securing the uterine arteries in the broad ligament. This is probably the case;

and it is a very striking fact that during the last few years the serre-nœud has been hardly ever referred to, either in papers or in text-books. Sutton mentions it only as a superseded method. Landau,[8] Homans,[9] Goelet,[10] and Montgomery,[11] in discussing the treatment of fibroids, have no reference to it. Jessett[12] says, "I do not think the day is far distant when Koeberle's serre-nœud will be relegated to the museum as an instrument which has done excellent work, but one which the progress of surgery has banished."

(3,) *The growing favour of the Intra-Peritoneal Operation.*—As long as the serre-nœud could maintain a claim of lower mortality than the intra-peritoneal method, surgeons and patients were perforce content to put up with the tedious and painful convalescence which it involved. Now the more scientific operation can show such a satisfactorily diminished mortality that it has definitely established its claim of superiority. For some cases less radical measures are, however, recommended. Ligature of the uterine arteries has its advocates in the treatment of smaller tumours (see Goelet, op. cit.); myomectomy is assigned a definite place by most surgeons, but the importance of that place varies considerably. The majority regard it as of somewhat limited utility, mainly on account of the great risk of hæmorrhage. Among those who have pleaded for its extensive use are Montgomery (op. cit.) and Alexander.[13] The latter employs this plan even in the case of multiple myomata, removing as many as there may be through a single incision.

Panhysterectomy has had its advocates; some of these are now giving it up in most cases in favour of the subperitoneal plan. Jessett,[14] one of the original authors of the operation, stated at the British Gynæcological Society, in October, 1898, that he had become converted to the view that the subperitoneal method was preferable in the majority of instances. (See also "Uterus, Diseases of.")

REFERENCES.—[1] "Clinical Journ.," Feb. and March, 1898; [2] "Brit. Med. Journ.," vol. ii, 1896, p. 1284; [3] "Med. News," July 3, 1897; [4] "Med. Age," June 2, 1897; [5] "Sem. méd.," March 2, 1898; [6] "Lancet," July 23, 1898; [7] "Brit. Med. Journ.," Jan. 29, 1898; [8] "Cent. f. Gyn.," No. 23, 1897; [9] "Amer. Journ. Med. Sci.," Sept., 1897; [10] "Amer. Journ. of Obst.," Jan., 1898; [11] Internat. Journ. of Surg.," Jan., 1898; [12] "Hospital," July, 1897; [13] "Brit. Gyn. Journ.," May, 1898; [14] "Med. Press and Circ.," Oct. 26, 1898.

FILARIA (Method of Examining for).

C. W. Daniels, M.B., British Guiana.

The difficulties in finding the adult forms of filarial embryos are three: (1,) Ignorance of their habitat; (2,) Their small size; and (3,) The close resemblance they have to small vessels, nerves and strands of the tissue amongst which they lie.

The adult filariæ in many cases must be numerous, as may be inferred from the number of embryos in the blood. In some cases only one embryo will be found, on an average, in each blood preparation examined under favourable conditions; whereas, in others, examined under similar conditions, large numbers (fifty or more) will be found in every slide, and in these latter the adults must be numerous. With regard to one of the filaria found in the aboriginals of this Colony, the adults are found in numbers approximately represented by the number of embryos in a dried blood preparation two-thirds of an inch square.

In the case of the best-known filaria, *Filaria Bancrofti*, the group of symptoms associated with its presence had led to the belief that its habitat was the lymphatic system, and in various portions of that system it has been found by several observers. In almost all the cases it has been found in a portion of the diseased lymphatics. The habitats of the two adult filariæ found in the aboriginals of British Guiana could only be suspected as probably extra-vascular, as no symptoms of diseases pointing to lymphatic or blood vascular disease or obstruction had been noticed. It was therefore surmised that their habitat was in the connective tissues, and those nearest the alimentary canal were examined with the result that worms were found in numbers, all of the same kind.

A second species of worm, which from its larger size, stronger body and smaller head, is better adapted for extensive locomotion, has been found in one case only, and in that case only two specimens in the connective tissue of the abdominal wall, just below the peritoneum. It is probable that this filaria is more widely distributed in the connective tissues of the body, and will be rarely found.

The size of the filariæ is indicated in the accompanying life-size photograph (*Fig.* 25).

A *B* *C*

Fig. 25.—Life-size, adult forms of the Filariæ Ozzardi.

A.—Adult Female of the blunt-tailed B. G. Aboriginal Filarial Embryos. The worm is broken, but the whole is present in its natural coils.

B.—Adult Female of the sharp-tailed B. G. Aboriginal Filaria. It was found in a similar loose coil.

C.—Adult Male of the same worm. The head is missing.

A represents the smaller of the aboriginal filariæ. It is usually coiled as in the photograph, but sometimes the coils are looser, or it may be extended. This is a female ; the male is shorter and only about half the thickness.

B and *C* are the female and male of the other aboriginal filaria, that found in the sub-peritoneal connective tissue of the anterior abdominal wall.

The filaria Bancrofti is slightly larger than this female, but the male is little more than half the thickness.

When isolated the worms are readily seen, but when in the tissues they can easily escape observation unless magnified. The search for them is greatly expedited by the use of a watchmaker's glass. The use is easy with a little practice, and both hands are free. In the tropics the horn mount should be perforated, otherwise moisture will be deposited on the lens and clear vision prevented.

This difficulty is greatly reduced if the examination is made whilst the worms are still living, *i.e.*, under six hours after the death of the patient. The worms are in movement and are more readily seen, identified, and removed entire.

The third difficulty caused by the similarity in appearance of the worms to surrounding tissues can only be overcome by the methodical examination of the suspected tissues bit by bit, and the use of the glass.

In the case of the smaller aboriginal filaria I remove the thoracic and abdominal contents entire, stripping the peritoneum off the abdominal wall and dividing the diaphragm at its attachments. I then separate the organs from the mass, leaving the mesentery and other peritoneal attachments as long as possible. The cut edges are then examined with the glass, and any worms found removed. If living, this can be readily done by gentle traction. The remaining mass consisting of the diaphragm, mesentery, pericardium, thoracic duct, aorta and surrounding connective tissues, can then be placed in 2 per cent. formalin, and examined at leisure if time does not permit of further immediate examination.

In the further examination, which is also made with a watchmaker's glass, any teasing is to be avoided, as strands of tissue are thus formed. The worms are less easily found if the specimen is examined floated in water, as floating filaments then cause confusion.

I find it best to examine the tissues on a flat slate kept wet. The black background thus afforded shows up the worms, and the rough surface of the slate makes it easy to cut off any portions examined.

The tissues should be split or torn into layers, the point of separ-

ation of the layers being carefully watched for worms whilst this is being done. Each layer should then be examined separately, and any barren portions removed. When one worm is found, there are others close to, as they are usually in groups.

The tissues and the contained worms should then be removed, care being taken that the tissues are cut wide of the head, which is often extended from the coil. By steadily continuing this process several fragments of tissue, each containing worms, are removed.

The worms are very brittle and easily broken. To isolate them from the small portions of tissue with which they have been removed, I float up the tissue in a shallow vessel with a dark background, and with two pairs of fine forceps tear the tissue bit by bit, avoiding any pull on the worms. The last fragments are perhaps best removed by needling, under a low power, the worms having been floated out on a slide.

I have entered into some detail which may be unnecessary in this description, as the parental forms of some filarial embryos, and particularly that of the African filaria perstans, are still unknown, and without careful and tedious examinations, are likely to remain so.

FILARIASIS. *T. Colcott Fox, M.B.*

C. W. Daniels,[1] of the British Guiana Medical Service, publishes some observations on filariæ and filarial disease in British Guiana. To most workers in the tropics the evidence of the dependence of elephantiasis on filarial infection by the filaria nocturna seems conclusive. He, however, gives some evidence obtained from local sources, concerning the *geographical distribution* and *racial incidence.*

Elephantiasis and filaria nocturna have the same geographical distribution, and Thornhill finds the rule applies to the local distribution of the disease in Ceylon. Similarly in British Guiana elephantiasis is only found in the Coast races, amongst whom the filaria is common, whilst the aboriginal inhabitants of the interior are free from the disease and from the filaria nocturna.

Amongst these Coast inhabitants some races are more commonly affected than others, and females are more often attacked than males. It has been determined that the proportion of persons infected with filaria also varies amongst these inhabitants, and that the relative incidence varies in the same manner as the incidence of elephantiasis. The cause of different racial incidence is then discussed by Dr. Daniels.

The Pathology of the Lymphatic Obstruction.—There is evidence (1,) That the parental worm can cause obstruction by exciting

hæmorrhage—probably only of importance when the larger lymphatic vessels are involved; or (2,) by exciting frequent attacks of lymphangitis; or (3,) that the embryos may be discharged into the lymph stream still in their egg capsules, in which case, from their size, they would be stopped at the next lymphatic glands, and thus cause obstruction. "In the first two cases the worms would be included in the blockage, and would either die, or if they escaped below the obstruction, their embryos could not reach the blood circulation. In the third case the parent worms would always be below the points of obstruction. It follows that filaria will be frequently absent in the blood of persons in whom lymphatic obstruction has resulted from the filaria, even when the adult worms are still living."

The Embryonic and Adult forms of the Filaridæ.—Daniels says the parental form, the F. Bancrofti, and its embryo, the F. nocturna, have been identified in India, China, Queensland, and in British Guiana; and, as the filaria was not indigenous in America, but was introduced with the negroes from Africa, we can assert the complete identification of the parasites for all elephantoid regions but Polynesia, where the embryos only have been observed.

The filaria Demarquayi has not been found in any of the West Indies. Manson, Daniels, and Ozzard have found a species of filaria (or two) prevalent in the interior of British Guiana, called by Manson filaria Ozzardi. Some forms are blunt-tailed, and may represent the African F. perstans (the adult form was found), and others are sharp-tailed. If they are both forms of one species, it cannot be F. perstans. There is no evidence as yet of any pathological *rôle* played by these parasites.

REFERENCE.—[1] "Brit. Med. Journ.," Sept. 24, 1898.

FRACTURES. *Priestley Leech, M.D., F.R.C.S.*

Of Humerus.—Peters[1] describes the treatment of fractures of the humerus by Aikins's hoop-iron splint. The material for the splint consists of ordinary hoop-iron, such as may be procured at any ironmonger's or blacksmith's shop. For infants and young children, iron 1 inch wide is sufficient; for adults, a width of from 1¼ to 2 inches will usually be found to be sufficiently strong. As a rule the material can be worked by hand, bending it over the edge of a table or around a pillar or bed-post, but a strong pair of pliers or monkey wrenches will be found useful. The hoop-iron is bent and twisted so that an arch is formed over the top of the shoulder; the anterior limb of the arch, eight to twelve inches in length, reaches downwards over the front of the chest in a direction towards the umbilicus.

The posterior limb forms the vertical part of the splint, and passes down the back part of the shoulder and arm to a point about an inch below the point of the bent elbow; at this point the iron is again bent somewhat obliquely so as to pass under the forearm in a direction towards the mid-line of the body. The splint thus nearly forms a triangle, the sides of which do not, however, lie in the same plane. The arch need not fit very accurately to the shoulder. A distinctive feature of the splint is that the distance from the shoulder arch to the bend under the elbow should be such that when the arch is fixed in position by strapping, considerable extension may be made on the muscles of the arm by drawing the forearm down to the horizontal limb of the splint below the elbow. The splint may be padded to any extent (in the illustrations (*Figs.* 26 and 27) it is shown unpadded).

Fig. 26.—Showing splint in position.

Fig. 27.—Showing splint in position.

The splint is put on with the patient in a sitting posture, or, if lying down, turned on the sound side with a pillow under it. The arch is secured by one or two strips of rubber adhesive plaster an inch and a half broad, and long enough to reach well down the front and back of the thorax; the anterior limb is secured in the same way.

A moulded splint (leather, gutta-percha, or pasteboard) is fitted to

the upper surface of the forearm, with the elbow bent to a right angle, palm upwards. Other splints may, if thought necessary, be applied to the humerus, or plaster of Paris may be applied, and strapped to afford access to wounds, etc. If the fracture is situated at or below the middle of the humerus, the original form of the splint (see *Fig.* 27) in which the anterior limb of the arch simply projects towards the base of the neck will answer every requirement. If the fracture is above the middle, the splint with a long anterior limb (*Fig.* 26) is best.

Of Vertebræ.—Poller[2] has had an extraordinary personal experience of over thirty cases of vertebral fractures. The cause of the injury in almost all the cases was a heavy weight coming from above and forcing the unfortunate ones forward, or, as he described it, shutting them up like a pocket-knife. The result was to crush and drive into each other the anterior portions of the vertebral bodies, forcing back the posterior portions of the bodies in the direction of the spinal canal. The laminæ and their processes were often torn from their attachments or otherwise injured. The patients often stated they heard a crack in the back. In some few cases the fracture was due to a fall or direct force, or from bending backwards. The lesion was usually situated in the lower thoracic and upper cervical vertebræ, corresponding to the well-known rule that fractures are most likely to occur in the regions uniting the more or less movable portions of the spinal column. A more or less distinct hæmatoma appeared at the seat of injury, but the deformity could easily be felt by passing the fingers along the line of the spinous processes, and appeared as a space or break in the mid-line, sometimes over an inch wide. Crepitus and preter-natural mobility could not usually be detected; diagnosis was usually easy. Together with fracture there is usually some luxation, the vertebral body being forced backwards, or possibly forwards, in which case it may be felt on palpation through the abdomen or in the cervical region by examining the posterior pharyngeal wall. Immediate palsy and sensory disturbances point to a primary crushing; if coming on in the course of hours or days they are suggestive of bleeding or inflammation.

He states that the prognosis of all these fractures, involving the posterior part of the arch or the spinous processes alone, without injury to the cord or the nerves, is absolutely good, the patients completely regaining their strength and often the full mobility of the back.

Treatment.—On an average, treatment lasted four months, and consisted of absolute rest in bed, the kyphosis being corrected by

carefully-applied pads, followed later by extension and the application of Sayre's jacket. In three cases in which the posterior projection was very marked, the deformity was reduced under ether. Electricity, massage, and douches were employed persistently to restore the muscles to their full tone. Motion was normal after recovery in two-thirds of all cases.

In nineteen cases the fracture was complicated by injury to the spinal cord. Thirteen of these died; six completely or almost completely recovered. The treatment adopted was forcible extension and reposition of fragments under chloroform. The patient was fully anæsthetised, and extension straps were secured to his head and fastened to a bar, which was seized by a powerful assistant; two assistants then seized him by the ankles, and all three pulling at a word made sufficient traction to lift the patient from the bed. The surgeon, with one fist protected by a padded towel, then kneaded and forced the bone into position. The dangers and disadvantages are *nil*, and its advantages are evident. The subsequent treatment is most carefully conducted; they were never allowed to move from bed in less than two months, every precaution being taken to avoid bed sores and prevent cystitis. When the bones had become united, the patients were extended daily as for the application of a plaster bandage, until they could endure this treatment for from twenty to thirty minutes at a time. A plaster bandage was then applied, and they were placed in a wheeled walking-chair or given crutches. In vertebral fractures the plaster dressing was not applied. Special caution is given against getting these patients out of bed too soon, and against allowing them to begin work too soon before complete consolidation takes place, as slow inflammatory processes are likely to be set up, followed by softening and great deformity.

In all cases of vertebral fractures with symptoms of compression and forward angulation of the spinal column, immediate replacement under ether is indicated.

Massage in.—Bennett[3] says that **Massage** for fractures has not received the attention it deserves from English surgeons. In suitable cases the results are better than those to be obtained by any other method. The pain and stiffness which are seen after fractures are due in most cases not to adhesions within or about the joint, but to matting together of the soft parts immediately about the line of fracture. Massage prevents this, and prevents atrophy of the muscles. It also relieves the muscular spasm which is so troublesome in many cases. Fractures about a joint require more care than those not near any articulation.

The only two objections against it are: (1,) The large amount of time required of the practitioner in the early stages during which the treatment must be carried out under his immediate supervision, unless a particularly skilled person is available; and (2,) The difficulty of finding in all places a person capable of safely undertaking the manipulations in the later stages, which would generally absorb more time than any busy practitioner could afford as a rule to give.

Colles's Fracture.—Dr. Storp[4] has treated one hundred and four cases of Colles's fracture by the following method: A strip of rubber plaster 2½ inches wide is wound about the arm just above the wrist joint. A second piece of plaster is placed exactly over the first, a fold being made in it on the radial side, and through the fold a hole is made, through which a piece of string is passed. The arm is held high up on the chest by the string, and the hand dropped downwards towards the ulnar side. In ten days the plaster is removed and the hand placed in a sling, the patient being advised to use it carefully. The results were exceptionally good, and the average duration of treatment was three weeks.

Delayed Union in Fractures.—Gauthier[5] has tried the administration of fresh **Thyroid** in retarded consolidation in fractures. He tried it with success in two cases where the thyroid gland appeared perfectly normal. He advises that the surgeon should himself get the fresh thyroid glands, preferably those of young sheep, as tuberculosis is extremely rare in these animals.

Operative Interference in Recent Simple Fractures of the Patella.—Powers[6] has obtained ninety answers from active and honorary members of the American Surgical Association, the New York Surgical Society, and the Philadelphia Academy of Surgery, as to the advisability of operating on recent simple fractures of the patella, the form of operation preferred, the number of cases operated on, with results, and the time at which patients could resume daily life either with or without operation. Analysis of the answers received show $23\frac{9}{11}$ per cent. as deliberately opposed to operation; $13\frac{7}{11}$ per cent. as urging it in all cases where competent surgical skill can be rendered amid suitable surroundings; and $56\frac{3}{11}$ per cent. recommend operation in selected cases such as those having wide diastasis, comminution, extensive joint distension, etc.; and $5\frac{6}{11}$ per cent. favour the use of Malgaigne's hooks. Seven hundred and eleven cases are given, with the kind of operation performed and the result.

He thinks that of non-operative methods, the Dutch method, that of Tilanus, consisting of massage, gives the best results. The risks of sepsis he places at less than 1 per cent.; suture gives the greatest

percentage of complete union and the smallest percentage of refractures.

Steel Pins for the fixation of Bones.—Annandale[7] says that steel pins are the most simple and efficient means for the fixation of bones after operation and injuries. The pins are made of good steel with a rounded head, and varying in length from one to six inches. The points need not be very sharp, and for antiseptic reasons they are best kept in a solution of carbolic acid in glycerin (1 to 6).

Fig 28.

The illustration (*Fig.* 28) shows some of the methods in which steel pins are used: At *A* the method of securing the bones after excision of the knee-joint is shown. One pin introduced over the inner aspect of the upper end of the tibia, and driven so as to pierce and fix the lower end of the femur, is usually sufficient, but sometimes a second pin may be introduced through the outer side of the tibia. At *B* is shown the method of treating an oblique fracture. At *C* the two pins are brought together by a loop of silver wire introduced subcutaneously, the ends being twisted and brought out at the upper pin puncture. At *D* is shown the method of fixing the bones after excision of the ankle.

Annandale says the pins can be easily inserted; they do not cause any undue irritation if proper antiseptic precautions are taken, and they can be easily withdrawn. As a rule they are loosened in from two to four weeks after their insertion.

REFERENCES.—[1] "Brit. Med. Journ.," June, 1897; [2] "Archiv. f. Chir.," 1897, quoted in "Therap. Gaz.," June 15, 1897; [3] "Lancet," Feb. 5, 1898; [4] "Archiv. f. klin. Chir.," Band 53; [5] "Lyon méd.," June 27 and July 11, 1897; [6] "Annals of Surg.," July, 1898; [7] "Scottish Med. and Surg. Journ.," Oct., 1897.

FURUNCLES OF EYE. (See "Eyelids, Diseases of.")

GASTRIC ULCER. (See "Stomach, Surgery of.")

GASTRO-ENTEROSTOMY. (See "Stomach, Surgery of.")

GASTROSTOMY. (See "Stomach, Surgery of.")

GLAUCOMA. *William Oliver Moore, M.D., New York.*

Abadie[1] reports a case of acute hæmorrhagic glaucoma, with great pain, in a patient in whom the other eye had been removed for the same disease. He removed the superior cervical ganglion of the left side, and the pain which had lasted seventeen hours ceased some few hours after the operation. Fifteen days after, the eye symptoms had all improved.

Jonnesco[2] has applied recently the method of *bilateral excision of the cervical sympathetic* in acute glaucoma, with improvement in vision.

REFERENCES.—[1] "Lancet," July 23, 1898; [2] "Sem. méd.," Oct. 26, 1897.

GLEET. *E. Hurry Fenwick, F.R.C.S.*

Chronic Urethritis.—After ten years of careful inspection of many hundreds of chronically inflamed urethræ with the electric light, I venture to briefly record the experience I have gained and to compare those facts upon which my conclusions are based with the present accepted teaching about chronic urethritis.

This seems to me the more opportune as, notwithstanding the duration of time the electric light has been in vogue, the profession at large are still retaining somewhat misleading, even erroneous views on this subject.

It is not my intention to consider acute gonorrhœa, for I rarely see a case in this stage, and our text-book treatment for it is, moreover, sound. I would rather glance at those troublesome, intractable, urethral discharges which have lasted months, even years, for these constitute a mental annoyance to the patient, and task the patience, time and skill of the practitioner.

It is curious to notice how opinions differ as to the cure of gonorrhœa and its subsequent stage of gleet. Some practitioners maintain that they have never failed to cure a case; others state that gonorrhœa is never cured. Between these optimistic and pessimistic views the profession may wisely steer a moderate, middle course.

My own experience teaches me that a very large proportion of cases are cured by the ordinary methods of injection, and a small percentage becomes chronic and intractable, apparently defying all efforts to effect a cure. Those who patiently learn and skilfully use the electric light in the diagnosis and treatment of urethral disease *can* cure a moderate percentage of these chronic intractable gleets. There remain over and above a small percentage which I believe are really incurable, even with all the methods which modern science has placed at our disposal.

I should premise my remarks by saying that the urethroscopes which I use and recommend, and by means of which the entire canal from the orifice of the bladder to the tip of the meatus is seen as if in direct sunlight, are two in number. The first I have described in the "Medical Annual" of 1893, p. 68 (*Fig.* 29), and I now use this mainly for operations, and the other, which is comparatively new, I employ routinely, because it has a greater light power. It is known as the Schall Urethroscope (*Fig.* 30).

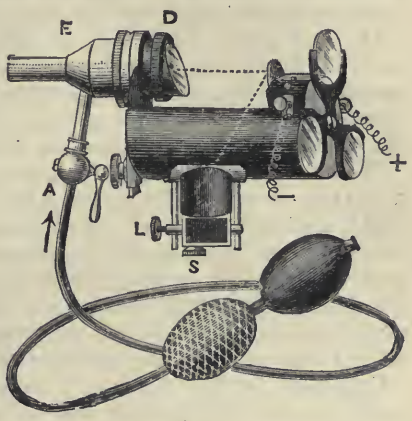


Fig. 29.

I submit that both urethroscopes are useless unless employed with an inflating apparatus, so as to distend the penile urethra like a blown-out glove finger, but I should not offer any adverse criticism to the use of Oberlaender's urethroscope which is not an inflating instrument but carries the light into the urethra. It is, however, difficult to manipulate, besides being cumbersome and costly, and not to my mind a very practical urethroscope.

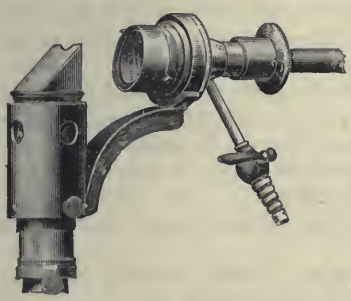


Fig. 30.

The Causes of Intractable Gleet (*in their order of frequency*): *Membrano-prostatic Catarrh.* — By far the greater number of gleets, which continue for months, are due to surface change of that part of the urethra which extends from the opening of the membranous urethra to the orifice of the bladder. This is known as membrano-prostatic catarrh. It is best seen with a long cannula or an open elbowed cannula, and best treated by swabbing. It cannot be too strongly insisted upon, that the urethra is an open tube tied up into two absolutely separate compartments by the compressor urethræ muscle, which closes 86 per cent. of *deep* urethræ, against air inflation, or penile

injections, except those given by a stream from a reservoir above the patient (Janet's method). Hence the penile open tube is washed out by the patient in 86 to 90 per cent. of all urethral discharges, whilst the posterior part remains untouched and uninfluenced.

The practitioner should aim at curing these cases of gleet, for much bladder and even renal disease will be thereby prevented, but this can only be effected by applying astringent solutions to and behind the membranous urethra. This is best effected by a Guyon catheter (cp. Author, "Cardinal Symptoms of Urinary Disease," p. 147).

The most reliable injection is some salt of silver—nitrate of silver, 5, 10, 15, or 20 grains, ad 1 oz., being the most reliable; 10 to 15 drops of this are instilled at a time into the deep urethra, twice a week, the strength of the injection being gradually increased. If much pain results a hot *bidet* may be taken after the introduction of the solution. The practitioner should be especially careful not to allow any of the solution to flow forwards into the penile urethra. (Cp. "Diseases of the Verumontanum," at end of this article.)

Congested Patches.—Sensitive congested patches in the penile urethra are next in frequency, and a fruitful source of gleet. They generally co-exist with the membrano-prostatic catarrh. The congestion and exudation varies in depth according to the age and severity of the original attack or its treatment, but at first they are merely surface conditions. They are best treated under electric light. The deep red patch is detected and covered with the open end of the cannula, swabbed with nitrate of silver, 2 to 5 grains to the ounce, then dried, then swabbed again with pure glycerin. This has to be repeated once or twice a week for three or four weeks. If the electric light is not available, an urethral cannula is passed gently along the canal until the patient complains of pain, when the progress of the cannula is at once checked, and the surface is then swabbed in a similar way. This is not so exact, but it is a fair substitute. It would pay practitioners to obtain a long urethral cannula and a swab carrier for these cases.

As time goes on in months or years a small percentage of these areas of congestion thicken, the mucosa getting more and more infiltrated and, finally, when the stage of contraction sets in a stricture forms. The gleet disappears from the obliteration of the vessels of the diseased areas, but this spontaneous cure of the gleet usually occurs before any marked diminution of the stream, that is, while the stricture is of *large* calibre.

Chronic Gleet is not synonymous with Stricture.—I venture to assert that the profession implicitly believes that all chronic gleet

Fig. A.—Normal Glands.

Fig. B.—Congested Glands.

Fig. C.—Periglandular Infiltration.

Fig. D.—Papilloma of Urethra.
From OBERLAENDER.

SCOTT & FERGUSON, EDINT

denotes stricture of the urethra, and many a diagnosis is given on the strength of this axiom. The teaching is based on false premises, and the diagnosis is frequently incorrect. A well-to-do patient carries through life a diagnosis of stricture and a black or steel bougie, to the use of which he obstinately clings, under the belief he is keeping his stricture "open." Probably he is fretting a sensitive mucous membrane into a state of irritation and stricture. I repeat, many inflammatory thickenings merely involve the mucous membrane, and do not invade the submucous tissue, and if wisely treated do not contract to form stricture.

Granular Urethritis.—Contrary to the accepted teaching, I am forced to believe that true granular patches are rare ; probably the oil-lamp urethroscopists were deceived by bad illumination. Granular patches are aggravated congested areas, only the surface is more succulent. They are treated in the same way, only more energetically; they are more liable to form stricture of the urethra.

Glandular Urethritis (*Urethritis Chronica Glandularis*): (*Plate IV*). —The most obstinate and the most difficult case to cure is a gleet emanating from a disease limited to the urethral glands of the penile urethra (glandular urethritis). Luckily the disease is rare. The mucous membrane round Littré's glands and the crypts of Morgagni are swollen. On looking down along the dorsum of the distended urethral tube, the observer will see a double row of whitish-yellow pin heads ; these are swollen glands. The ducts may or may not be plugged ; if the latter, the glands become like small cysts, and project into the urethra. The cyst finally breaks, the cavity contracts and draws the thin mucous membrane together at one point. This finally forms one variety of the so-called "stricture of large calibre," and these strictures are consequently found most marked on the dorsal part of the urethra. The cure of glandular urethritis is uncertain. The most reliable and exact method is to insert into each of the small openings a fine platinum point connected with the negative pole of a constant battery and to place the pad-electrode of the positive pole on the thigh. On passing a current of 2 to 5 milliampères for thirty seconds the gland is destroyed. Three or four glands may be taken at a sitting.

Failing this method, probably internal urethrotomy on the roof with a Civiale urethrotome is the best substitute. The scarring of the operation in the middle line tends to atrophy the glands.

Ranula of Cowper's Duct.—I have already drawn attention to this condition and the manner in which it induces gleet ("Medical Annual," 1897, p. 580). It is quite impossible to diagnose or to treat

it wisely without the urethroscope. Luckily, it also is rare. I have only met with twenty-five examples.

Urethral Warts: (*Plate IV, Fig. D*).—It is often asserted that such conditions as warty growths do not affect the urethra, or if they do, it is only just within the meatus. This is quite incorrect. I have now a series of some twenty cases in which the entire penile urethra was covered with warts similar in appearance and microscopy to those observed on the glans penis and prepuce in gonorrhœa. The bright red colour of the streaky radiating vessels of the flat warts stand out markedly against the dull red or white of the distended urethra, and catch the eye at once.

Of course, while warts remain in the canal there is no cure for the gleet. Should any patient show any decided tendency to form warts upon his hands or prepuce and suffer from an obstinate gleet, should he, moreover, complain of twisted stream and bleed on the slightest touch with the bougie, I believe the case is better dealt with by the urethroscope in skilled hands.

The removal of warts is easy. The urethra is cocainised or eucainised, a low percentage of the drug being safest. The cannula end is placed under control of the eye, against the meatal edge of the wart, the urethra is fixed and rendered taut with the left hand whilst the right gives the cannula a sharp push against the base of the wart. By this means it is shorn off the wall and caught in the cannula. A fine pair of aligator forceps removes it from the tube, the bleeding surface is dried, swabbed with iodine liniment, dried again, and the cannula is passed on to attack in a similar way the next wart or collection of warts. I have removed as many as twenty-five warts at one sitting without much subsequent pain. Occasionally they are very obstinate, and recur, despite the most careful treatment, but they do not exhibit that obstinacy which the urethral papilloma in woman is credited with. In only two cases have I had to operate more than twice.

Deep Changes in the Prostatic Urethra: (*Plate V*).—Occasionally the verumontanum and its immediate area becomes infiltrated, and the gleet which results is incurable, unless the disease is heroically treated. When infiltrated or deeply inflamed, the verumontanum becomes swollen and succulent, and of a deep maroon colour. I have occasionally been forced to resect this body entirely, slicing it off like a carrot top with my cutting prostatoscope (a prostatoscope with the lower margin of its window made with a cutting edge). The verumontanum comes off in this procedure like a tonsil, and if carefully sliced the bleeding is insignificant. The subsequent incon-

PLATE V.

Fig. E.—Normal Verumontanum.

Fig. F.—Congested Verumontanum.

Figs. G. and H.—Gonorrhœal Infiltration of Verumontanum.—From OBERLAENDER.

PRATT & PENDLEBURY, EDINR

venience is that part of the semen is apt to regurgitate into the bladder. But resection is rarely necessary. The best treatment for minor grades is the application of strong nitrate of silver to the body and the immediate neighbourhood; in some cases the solid silver-stick point.

In other cases the sinus pocularis harbours disease, and a fine needle point of silver-stick must be thrust sharply into its recess. This is easily done under the light.

The prostatic sinuses, when gonorrhœa has profoundly affected this section of the urethra, become implicated and are very difficult to treat or cure. Ranula of the sinuses sometimes follows from blockage of the openings, and demands the utmost skill. It is a question, in my mind, as to their best treatment. I am not sure whether they ought not to be opened from the perineum, for they would then heal with the wound, but this seems a rough procedure for so small a condition. Hitherto I have incised them through the cannula.

If there is no ranula, a combination of massage* per rectum of the prostate and deep urethral injections of glycerin or some astringent is often the best treatment. The compression of the prostate empties the ducts little by little, brings about a healthier tone to the congested gland, and permits of the more effectual soakage of the glycerin or the silver solution into the sinuses.

Subacute Inflammation of the Seminal Vesicles.—There is an increasing tendency, I believe at the present time, to give undue prominence to gonorrhœal invasion of the seminal vesicle. It is taught that they are *frequently* attacked. In my experience this is not so; in fact, I place the complication last in my list of the causes for intractable gleet. I admit that cases do present themselves with all the symptoms of subacute prostatitis after gonorrhœa, in which the vesicles are swollen and tender, but they are comparatively rare. When they do occur they are a source of difficulty and misery. Massage may be adopted, but it requires the greatest gentleness, and it is absolutely contra-indicated if the patient have any evidence of tuberculosis, or if there is any epididymitis present. In these latter cases any massage will aggravate and disseminate the disease.

If the vesicle remains the source of pain, and other methods have failed to relieve it, it can be removed by a perineal incision. (Cp. art. "Prostate.")

* The massage should be gentle, yet firm; it should be cautiously prolonged in duration from a one-minute to a three-minute sitting. It should be directed from the periphery of the prostate to the centre.

GOITRE. *Henry Dwight Chapin, M.D., New York.*

Dr. F. Huber[1] reports a case of goitre in a child of seven years cured by the use of **Thyroid Extract.** The goitrous growth had been noticed about eighteen months, and within the last six or seven months it had grown perceptibly. The lateral measurement was three and a half inches, the vertical about two inches. A dose of 1 grain daily of thyroidine (Parke Davis and Co.) was given for three days; 2 grains daily were given for three days, and then 3 grains were given. When the child had taken the extract for a week some restlessness developed. The improvement in the tumour was rapid, and in about six weeks the growth had entirely disappeared.

Dr. C. G. Kerley[2] reports a case of exophthalmic goitre in a girl of thirteen, apparently cured by the use of thyroid extract; 5 grains were given three times daily after meals. In about a month, distress in the stomach and dizziness were complained of, which were attributed to the large dose of the thyroid. It was then reduced to 3 grains three times daily. After three months there was marked improvement, with the eyes only slightly prominent.

REFERENCES.—[1]"Arch. Ped.," vol. xiv., No. 12, 1897; [2]Ibid., vol. xiv., No. 12, 1897.

GONORRHŒA.

The use of **Chlorinated Soda,** recommended by Doyen,[1] in 1884, has been tried by Chassaignac in five hundred cases of gonorrhœa in various stages of the disease. The author claims that all cases improved except those that were too acute to syringe, and some cases that were very chronic.

The advantages are: (1,) It is an alkaline fluid, and therefore antagonistic to the gonococcus, which thrives best in an acid medium; (2,) It is antiseptic, penetrative, and non-irritating; (3,) It dissolves the secretion of the mucous membrane, but it does not coagulate albuminoids.

Chassaignac uses three solutions of different strengths: 1 in 48, 1 in 32, and 1 in 24. The weak solution is used for acute cases, the strong for old cases, the medium for most cases. The solution must be pure and comparatively fresh. It is used three or four times a day at first, afterwards twice a day, and injected with a syringe holding three-eights of an ounce, the injection being retained for two or three minutes. The treatment is continued till the "morning drop" disappears, and the threads have ceased to appear in the urine after moderate indulgence in alcohol. The author states that he has often had a relapse after changing to other injections, and also improvement after changing from the other solutions to the chlorinated soda. He also recommends it for gonorrhœal ophthalmia.[2]

(See also "Seminal Vesiculitis" as a complication of Conorrhœa, in article "Prostate, Disorders of.")

REFERENCES.—[1] "Trait. de la blennorrhagie; [2] "Amer Journ. of Cut. and Gen.-Urin. Dis.," Jan., 1898.

GOUT. *Editorial.*

Dr. A. P. Luff,[1] after considering the various views as to the causation of gout, believes that the presence of uric acid in the blood in gout is due to absorption of that body from the kidneys owing to deficient excretion of it by those organs. He strongly maintains that if uric acid was normally produced in the liver, spleen, or tissues generally, then it must be conveyed in the blood to the kidney to be excreted, and therefore ought to be capable of detection in the blood of healthy persons. He referred to the results of a number of experiments to show that careful examinations of the blood of healthy human beings, of other mammals, and also of birds, failed to show the presence of the least trace of uric acid. Dr. Luff, therefore, considered that the first step in the pathogenesis of gout was a failure on the part of the kidneys, from functional or organic mischief, perfectly to excrete the uric acid formed in them, and that, consequently, absorption of the non-excreted portion took place from them into the general circulation, where it at first existed in the form of sodium quadriurate, and formed the source from which the gouty deposit was derived. Dr. Luff was of opinion that uric acid was formed in the kidneys by the combination of urea with glycocin, or with one of the derivatives of the latter body. He brought forward evidence to show the erroneous nature of the views held as to a diminution of the alkalinity of the blood promoting uratic deposition, whilst increased alkalinity of the blood was supposed to cause solution of the deposit, and claimed that in the light of recent experimental evidence such views were untenable. The gout-inducing properties of certain wines and beers he considered to be due to the effect they excercised on the liver by increasing the amount of glycocin passed to the kidneys, and so causing an increased production of uric acid in those organs.

In the treatment of gout, Dr. Luff advocated the necessity of attention to the personal factors of each patient, and the desirability of determining, from time to time, the daily output of uric acid. The immediate treatment of the gouty paroxysm and the after-treatment of the gouty state were discussed. To promote the absorption and elimination of the gouty deposit, Dr. Luff advised the use of **Citrate of Potash, Copious Draughts of Water, Hot Baths,** and **Massage,** and the use of a table salt prepared from vegetables in place of common salt. A rational mixed diet with sufficient vegetable food was advised.

When a mineral water was employed with the object of removing gouty deposits, Dr. Luff strongly advocated the selection of a water as free as possible from sodium salts, although waters containing those salts might be usefully employed in the treatment of certain gouty affections.

The same author,[2] after considering the various remedies used in the treatment of gout, came to the following conclusions:—

(1,) The ordinary alkalies, the lithium salts, piperazin, and lysidin, do not exercise any special solvent effect on sodium biurate, and their administration to gouty subjects with the object of removing uratic deposits in the joints and tissues appears to be useless.

(2,) Sodium salicylate does not exercise any special solvent effect on sodium biurate. Its administration with the object of removing uratic deposits in the joints and tissues appears to be useless, and, moreover, it is apparently contra-indicated in gout on account of its leading to an increased formation of uric acid in the kidneys.

Sir Willoughby Wade[3] divides cases of gout appearing in connection with the joints into three classes: (1,) The acute attack of regular gout; (2,) Chronic gout—possibly a sequel of an acute attack, with much deposit of urates in a solid or semi-liquid state. In this, with more deformity, there is much less pain and tenderness, though along with these redness and superficial swelling may, from time to time, be superadded with an increase of deposit within the joint; (3,) Pains referred to the joints of a more or less fugitive character, or tenderness felt chiefly on use, which latter may, if excessive, be followed by increase of pain and even some redness and swelling, or an attack of the first variety. In an attack of gout which has affected the metatarso-phalangeal articulation of the great toe, lines of tenderness can be detected running from the joint across the dorsal and plantar aspects of the foot in the line of the nerves supplying the joint. This nerve affection sometimes has the character of a neuritis, and at other times that of a neuralgia, and may, therefore, be described as a neurosis. The lesion may arise from injury or from the presence of some toxic agent in the blood. A neurosis is the primary and essential element. If a sensory nerve is attacked, we get pain and tenderness; if a vaso-motor nerve, we get redness and swelling; if the nutritive nerve of a joint, we get changes in the joint, one result of which may be a deposit of urates.

Riehl,[4] opposing the view of Ebstein, says that in gout urate crystals are deposited in unaltered living tissues, and that the assumption that necrosis of the tissues must precede the deposit of the salts must be given up. Whether the tissue increase about the

urate deposits is due to mechanical or chemical irritation is not yet clear. Gouty nodules are probably formed about as follows: First, a deposit of crystals in the lymph-spaces and vessels and in the connective tissue itself, due to this inflammation of the surrounding tissue with granulation tissue and giant cells. The author thinks that the failure of others to find urates in the healthy tissues is due in part to their having examined tissues from the cadaver, and in part to faulty methods of hardening.

The following formulæ have been employed in gout:—

℞ Tr. Stramonii ℥j | Tr. Guaiaci ℥ij
Tr. Colchici ℥iss |
M. Sig.—Teaspoonful three times a day in milk.

As an external application:—

℞ Lithium Sulphichthyolate 1 part | Vaseline 2 parts
M. This ointment is to be rubbed into the painful limb.

Edison[5] proposes to remove from the system, by electrical medicated applications, the uric acid which is the cause of so many diseases, and whose treatment so often baffles the physicians. He effects this by passing lithium electrically through the system, by plunging one hand of the patient in a solution of chloride of lithium, and the other in a solution of chloride of sodium; each solution being connected with one pole of a battery. In experiments on a healthy man, a current of four milliampères was applied two hours daily for a week, during which time 55 centigrammes of chloride of lithium, sufficient to carry off 2·43 grammes of uric acid, were passed through the system, and this was followed up on a man seventy-three years of age, who for ten years had suffered intensely from gout, his joints being terribly swollen, and walking almost impossible. The pain ceased with the first operation, and after four hours' treatment daily for six days his hands resumed their normal proportions, and he was entirely cured, three cubic centimètres of urate of sodium having been absorbed.

REFERENCES.—[1] "Brit. Med. Journ.," Jan. 13, 1898; [2] "Lancet," June 11, 1898; [3] "Med. Times and Hosp. Gaz.," July 24, 1897; [4] "Med. Klin. Woch.," No. 34, 1897; [5] "Med. Herald," Dec., 1897.

GRAVES'S DISEASE. (See "Exophthalmic Goitre.")

GUN-POWDER STAINS. *T. Colcott Fox, M.B.*

Cases are now and again met with in which a person's face is distressingly disfigured by gun-powder. Jackson[1] says that immediately after the accident an attempt should be made to pick out all possible grains. These, however, soon disintegrate and stain the

skin, as in tattooing. Then **Electrolysis** comes in. Each black or blue dot should be entered with the steel broach, and minute white cicatrices are substituted for the stains.

Tattoo Marks in dots are dealt with in a similar manner.

REFERENCE.—[1] "Med. Record," June 4, 1898.

HÆMORRHAGE (Ante-partum). (See "Labour.")

HÆMORRHAGE (Arrest of). *Priestley Leech, M.D., F.R.C.S.*

Van Relt Vicks[1] gives the following formula as an unfailing styptic in hæmorrhage :—

Pulverised Resin (common)	ʒiv	Chloroform	ʒij
Carbolic Acid (95 per cent.)	ʒiij		

Make a short, thick, cotton rope larger than the wound to be treated, moisten the end well with the compound, and plug the cavity tightly.

Dr. Gundrum[2] recommends drachm doses of fluid extract of **Senecio Aureus** three times a day as a hæmostatic in parenchymatous hæmorrhage. He relates cases of hæmaturia, hæmoptysis, and menorrhagia, which have been benefited by this drug.

REFERENCES.—[1] "Med. World," July 24, 1897 ; [2] "Therap. Gaz.," Oct. 15, 1897.

HÆMORRHAGE (Ocular). (See "Retina, Diseases of.")

HÆMORRHAGE (Post-partum). (See "Labour.")

HÆMORRHOIDS. *Charles B. Kelsey, M.D., New York.*

In a clinical lecture Kelsey[1] calls attention to the possibility of radically curing hæmorrhoids, fistula, fissure, pruritus and other of the more common affections of the rectum, by office treatment without ether or confinement to the house. He advocates no especial discovery, and distinctly repudiates the injection method, which he considers uncertain and dangerous, but he teaches that by the intelligent use of surgical methods already known, combined with manipulative skill in the employment of instruments, gentleness and patience, many of the cases now sent to hospital for operation may be radically cured in one's office. Particularly is this the case with hæmorrhoids, fissures, pruritus, and the less severe forms of fistulæ.

The lecture is brief and intended to be suggestive rather than a detailed description of the author's methods, which vary in different cases and cannot well be made intelligible to the student without clinical demonstration, exactly as is the case in some other specialities, such as the nose and throat, eye and ear.

Dr. Janes[2] reports a new method for treating internal hæmorrhoids by means of a clamp and suture instead of a cautery. After divulsing the sphincters he seizes each hæmorrhoid and applies the clamp to its base, cuts away the pile, and approximates the mucous membrane of the stump with catgut sutures as follows: The ligature is threaded with two needles. Beginning at one end of the wound, one needle is made to transfix each side of the mucous membrane; then by means of a double continuous suture the surfaces are united with a cobbler's stitch, and in addition each time the needles are drawn through an overknot is tied. This form of suture is unique, as it prevents any possible bleeding, and greatly lessens the risk of the deeper part of the wound becoming infected.

REFERENCES.—[1] "The Office treatment of Hæmorrhoids, Fistula, etc. without Operation." Charles B. Kelsey, M.D., E. R. Pelton, New York, publisher. [2] "Indiana Lancet," June 7, 1897.

HAIR (Growth of, on Favus Scars after Scarification and Planting of Portions of Hairs). *T. Colcott Fox, M.B.*

This remarkable observation has been carefully and clearly epitomised by Mr. Wilmot Evans, in the pages of "Treatment," and we reproduce the epitome here with due acknowledgment.

Dr. M. Hodara[1] (of Constantinople) last year had under treatment two girls who were suffering from favus; they had several favus scars, which were completely smooth and uncovered with hair. After the favus was quite cured, he made an attempt to cure the baldness. He incised the scars fairly deeply, the incisions being close together and crossing one another. When the hæmorrhage had completely stopped, he scattered over the part a large number of little pieces of hair; they measured from 1 to 4 mm. in length, and the bulbs were not used. The pieces of hair should be freshly cut. The part was covered with paper and with strapping. About four weeks later the strapping was taken away, and most of the little hairs came away with it. A kind of pellicle had formed, which was pulled off with the strapping. Under this layer some few hairs remained which had taken root. These little hairs continued to grow, and after three or four months they had reached no inconsiderable length. The hairs which persisted were not numerous. These attempts were repeated on favus scars in both men and women, and in all cases with the same favourable results. Dr. Hodara therefore claims that it may be taken as established that small pieces of hair placed in scratches on absolutely bald scars can take root and grow.

He has examined fully into the histology of this new growth of

hair, with the following results: If these small pieces of hair are examined a few weeks after their implantation, it is found that the hair has grown downwards, and has developed a bulbous enlargement; and if the hair be examined some months later, a regularly formed hair is found with a complete bulb. It is further seen that a new hair follicle forms around the new hair; a proliferation of the prickle cells of the epidermis occurs around the new hair, so that the new cells are arranged in layers; those most superficial form the inner root-sheath, and those farther from the hair form the outer root-sheath. The cells on the inner surface of the sheath blend with the lower part of the implanted piece of hair, which has already struck root and grown downwards. The newly-formed follicle suffices for the nourishment and further growth of the new hair. This further growth of the hair results from the proliferation of the prickle cells lying immediately around it. Later, by proliferation of the connective-tissue cells, a fibrous coat develops around the outer root-sheath. Some of the cells in this outer root-sheath develop into sebaceous glands, which open into the newly-formed hair follicle, and, finally, some new muscular fibres develop.

The author acknowledges that there is much room for improvement in the method, as, though very many pieces of hair may be put on the scarified scar, generally very few hairs develop, and he explains this by saying that probably only very few of the pieces of hair fall into suitable positions in the scarifications; many of them fall off again, or are pushed off with the desquamating skin; while of those which are in the scarifications, only a few are probably sufficiently deep to give rise to new follicles and new hairs. In the last operation the author has placed the pieces of hair one by one in the scarifications by means of a fine pair of forceps. The method is obviously not yet perfect, and much practice of it is necessary before its exact value can be estimated. A coloured plate accompanying the paper shows the histological appearances presented by growing hair and the formation of the new follicle.

REFERENCE.—[1] "Monatsh. f. prakt. Dermatol.," Band xxvii, No. 2, July, 1898, p. 53.

HAY FEVER. *R. Lake, F.R.C.S.*

Theory still occupies a large portion of our so-called knowledge of this disturbance of the system.

C. P. Grayson[1] pleads for more rational and broad-minded treatment. He does not neglect the intra-nasal part, but combines with it an intelligent use of hygienic and dietetic aids. He searches for any excess on the part of the sufferer, correcting

any irregularity. And, as far as drugs go, he places great reliance on **Iron.**

TREATMENT.—For internal administration, **Quinine, Valerianate of Zinc, Fowler's Solution, Chloral Hydrate** (2½ grains frequently repeated), or **Atropine** ($\frac{1}{100}$ grain every hour), are the most favourite remedies.

The following solutions and powders may be tried. **Carlsbad Water** used as a spray, and this followed by a douche of a 20 to 30 per cent. solution of **Nitrate of Silver,** afterwards applying the accompanying solution :—

℞ Menthol	gm. 3	Sp. Vini. dil.	gm. 14
Resorcin	gm. 3	M.	

Or Muller's[2] solution :—

℞ Sodii Bisulphatis	1 part	Aquæ Destillatæ	500 parts

Or the following ointment :—

℞ Hydrochlorate of Cocaine		Subcarbonate of Bismuth	℥ij
Thymol	āā gr. 3	Vaseline	℥j

It should be applied by means of tampons of absorbent wool, or any of these powders may be used as insufflations, bearing in mind the fact that it is not every patient who will use powders.

Or one of the following powders[3]:—

℞ Pulv. Ac. Borici	gr. 30	Quin. Hydrochlor.	gr. 3
Sol. Salicyl.	gr. 40		
	M. Ft. pulv		
℞ Naphthalene Pulv.	℥vj	Ext. Violets	gr. xv
Ac. Boraci	℥vj	Ess. Roses	gr. xv
Camphor Pulv.	gr. xv		
	M. Ft. pulv.		
℞ Menthol	gr. 6	Bismuth Salicyl.	
		Sugar of Milk	āā gr. 75
	M. Ft. pulv.		

REFERENCES.—[1] "Therap. Gaz.," Oct. 15, 1897 ; [2] "Med. Record," Feb. 5, 1898 ; [3] "Journ. de méd. de Paris," May 9, 1897.

HEART (Diseases of). *Alfred H. Carter, M.D., F.R.C.P.*

Diagnosis.—Use of Posture in Percussion of the Heart.—Paterson[1] calls attention to the difficulties in obtaining exact data as to the size of the heart by means of percussion, due partly to the anatomical relations of that organ, and partly to the wide variations in the position of the heart, and the extent of its contact with the chest wall according to the posture of the patient. He strongly recommends percussion in the prone posture where exact results are required. This may be attained by having the patient on his hands and knees on a table, or

standing upon a high-backed chair with the trunk bent forward, the right hand resting on the back of the chair, and the left arm placed loosely behind the back. The increased area is represented in the subjoined diagram (*Fig.* 31).

The apex moves outward, sometimes outside the nipple-line, and is more diffused; the area of superficial dulness is increased, and the transition from pulmonary resonance to cardiac dulness becomes much more abrupt, and thus far easier to recognise.

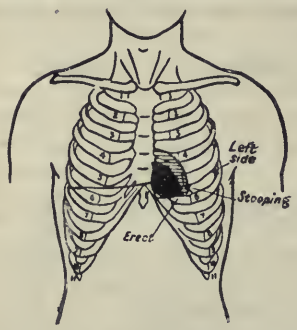


Fig. 31.—Outline of percussion area from a man twenty-six years of age. Light shading represents increased dulness in stooping posture; × × the cardiac impulse in different postures.

Sewall[2] describes the results of exerting firm pressure with the chest-piece of the binaural stethoscope in the practice of auscultation, and regards the method as an important aid to diagnosis, owing to the suppression thereby of all sound due to mere sympathetic resonance of the chest wall: (1,) It enables one to estimate more exactly the real energy of the ventricles from the intensity of the first sound of the heart; (2,) It permits the more exact determination of the cardiac boundary, by the more or less abrupt diminution of the intensity of the sounds as the border of the ventricles is passed; (3,) Under normal conditions, pressure over the inner end of the second right interspace nearly or quite annuls the second sound of the heart, whereas, in marked aortic dilatation or aneurysm of the ascending aorta, this is not the case; (4,) It permits a more accurate interpretation of heart murmurs. Thus (*a*,) basic systolic "hæmic" murmurs often disappear with pressure over the base of the heart; (*b*,) aortic systolic murmurs are suppressed by auscultation with firm pressure over the apex, whereas mitral systolic murmurs are not so; (5,) Pleural and pericardial friction sounds are generally intensified by pressure.

Röntgen Rays.—It has now become an accepted fact that the Röntgen rays will enable us to discover the position and size of the heart, and, to some extent, its movements, and thus furnish us with a valuable additional means of diagnosis in obscure cardiac conditions. This may be done either by a permanent photographic record on a plate or by a fluorescent screen. Campbell[3] says that the method by direct vision is preferable; a piece of paper may be fixed to the back of the fluorescent screen and a tracing made along the edge of the

shadow thrown by the heart. Satterthwaite[4] confirms the majority of Campbell's conclusions, but says that Campbell's plan of putting the Crook's tube opposite the spine of the seventh dorsal vertebra on the left side, *i.e.*, opposite the centre of the heart, is apt to produce some distortion and enlargement of the shadow. He prefers to first ascertain the outline of the cardiac dulness as far as possible by percussion, and then to get a tracing whilst the light is moved opposite these points. The method is of particular importance in the examination of cases submitted to the Schott plan of treatment, in cases of emphysema where percussion gives no reliable results, and in doubtful cases of aneurysm and mediastinal tumour.

Sansom,[5] starting with the assertion that serious *neurotic disturbances* of the heart occur in the absence of any recognisable organic murmur, lays stress upon the importance of examining all nervous patients in as quiet a state as possible ; also upon making search for (1,) Slight degrees of prominence of the eyeballs, retraction of the upper eyelid, marked tremor of the eyelid on voluntary closure, and inequality of the pupils ; for when these signs are associated, neuroses of the heart are extremely common ; (2,) Morbid irritation in any part of the naso-pharyngeal tract or in the auditory passages, each being capable of causing heart disorder; (3,) The existence and site of muscular tremors which indicate a great probability of some cardiac disorder of the nature of Graves's disease. The pulse should be carefully observed while the patient is at rest. In interpreting the significance of a systolic murmur, it is of the first importance to determine the presence or otherwise of persistent cardiac enlargement. With a systolic murmur of neurotic origin the heart, as a rule, is *not* dilated, and the area of maximum intensity rarely corresponds with the exact apex. It does not occupy the whole but a middle period of the systole. It is much influenced by respiration. A murmur which is audible in the recumbent but not in the erect posture is never organic.

Chronic Alcoholism and Heart Disease.—Beddard[6] writes an instructive paper on this subject, in which he states that the occurrence of general dilatation and hypertrophy—apart from valvular disease, arterio-sclerosis, and granular kidney—due to persistent abuse of alcohol has not received in this country the attention it deserves. Briefly, it usually affects fat men between twenty-five and thirty who have not only drank freely for years, but have also done heavy work. The earliest symptoms are dyspnœa and palpitation on exertion. There is slight œdema of the ankles, and the liver is somewhat enlarged and tender. Emphysema is usually present. Complete

recovery may take place at this point with rest, aperients, and abstinence from alcohol. Otherwise, the symptoms grow worse. The face becomes bloated and cyanosed; there may be orthopnœa and nocturnal asthma, but anginal pains are rare. The œdema increases; the patient is restless and irritable, and often wanders at night, frequently attempting to get out of bed (a bad sign). If it can be felt, the apex beat is displaced downwards and outwards, is weak and diffused. A systolic murmur may or may not be present, but the sound and rhythm are modified so as to produce a *bruit de galop*, or fœtal-like sounds. The pulse is rapid, of low tension, and sometimes irregular. Urine scanty and generally albuminous, and casts may often be found. The diagnosis rests upon the history of the case, the absence of other adequate explanation of the symptoms, and the age of the patient. As to prognosis, some cases get well after one or more breakdowns; others make a partial recovery; while others end fatally with a duration from a few weeks to three or five years.

The pathological details given in the paper cannot be repeated here, but it appears that alcohol acts upon the heart in three ways: (1,) By direct action on the musculature, inducing a chronic interstitial myocarditis and degeneration, and also a primary weakening of contractility; (2,) By inducing a neuritis of the terminal branches of the vagus; (3,) By possibly increasing the quantity of fluid in circulation.

The primary indication in treatment is complete abstinence from alcohol. In the earlier stages the Nauheim system of treatment may be of great service in conjunction with the ordinary remedies employed in chronic valvular disease. In advanced cases the remedial value of venesection and restriction of fluids in the dietary deserve mention.

Valvular Affections.—Permanence is generally and rightly regarded as evidence of a murmur being of organic origin in contrast to the temporary and variable duration of functional murmurs. At the same time it should be remembered that organic murmurs sometimes disappear under circumstances which are difficult to explain. Musser[7] has collected a good many facts on this matter. Mitral stenotic (pre-systolic) murmurs are the most prone to disappear of any organic murmurs, either in the course of the disease or in the terminal periods. Instances have also been recorded of the disappearance of aortic regurgitant murmurs, but only quite seldom. It is more than probable that at least in a certain proportion of these, the murmur—while presenting the characters usually associated with aortic incompetence—are due to other causes. If a mitral regurgitant murmur disappears it is practically safe to assume that it is inorganic. Still, one or two cases have been recorded in which a regurgitant murmur

dependent upon valvular interference by a floating body appears and disappears. There is no recorded instance of the disappearance of murmurs due to aortic stenosis or tricuspid regurgitation.

Sir W. Broadbent,[8] in a valuable address delivered to the North London Clinical Society, alluded to the hardship caused by the needless rejection of army and public service candidates because of temporary heart-disturbance under the influence of excitement, and the depressing conditions of preparation for examination. He points out the importance in such cases of considering the personal history, saying : "It would take a great deal to make me reject the captain of a football team of a large school. . . Such disturbance of the action of the heart, however exaggerated, is not inconsistent with perfect soundness and efficiency." "A fair test" would be to make the man run a mile round one of the cinder paths at his own pace, noting his time, but especially the period at which he got his second wind, and how he finished up. "Sometimes," he added, "a run up two flights of stairs would bring the heart to its senses." A more common cause of rejection is the presence of a murmur which may be perfectly innocent of significance. Such murmurs may simulate closely a soft systolic mitral, but are heard only during inspiration or when the chest is full, and are due to compression of the overlapping lung by the heart during systole. Pulmonary murmurs may depend on bulging of the conus arteriosus against the chest wall ; they disappear when the lung is interposed on deep inspiration. Sometimes bruits are heard, not only in the course of the ordinary mitral regurgitant, but over the greater part of the lung. In such cases there is usually pleural adhesion. "I have known such bruits," said Sir William Broadbent, "to be looked upon as indicative of valvular disease, requiring treatment by digitalis and demanding all sorts of precautions in the matter of exercise," and he mentioned the case of an athlete, aged twenty years, who presented a murmur resembling the mitral regurgitant, and also one over the pulmonary area. Apart from the bruits the heart sounds were normal, and in particular there was no accentuation of the pulmonic second sound. The left side of the chest was narrower than the right and moved less on respiration. The condition was probably due to pleuro-pericardial adhesion, and after five months' very vigorous exercise the patient was none the worse. The criterion of pseudo-mitral disease is absence of displacement of the apex beat and of accentuation of the pulmonic second sound, or undue right ventricular impulse, together with absence of symptoms. Restrictions as to games in such cases, except with regard to football, house runs, and training for races, are often needlessly imposed.

Other murmurs are heard in the tricuspid area which are perfectly harmless. And such tricuspid bruits are rarely constant. Sir William Broadbent also alluded to dilatation of the heart and intermittent albuminuria.

Samways[9] publishes an analysis of post-mortem reports at Guy's Hospital of one hundred and ninety-six cases in which the mitral orifice was narrowed, which goes to show that the characteristic alteration in the left auricle in this condition is not dilatation but hypertrophy ; and that the former is probably only introduced with auricular break-down, and is thus an old-age phenomenon in the history of mitral stenosis. A pre-systolic murmur is heard some time in the course of the disease in about three-fifths of all cases, and a thrill in about one-third or rather less, while a history of rheumatism may be traced in upwards of 60 per cent. of all cases. Pericarditis was present in nearly one-third of all the cases, and was universally adherent in thirty-five cases ; sudden death occurred in at least seven cases.

Infective Endocarditis.—As the evidence of the microbic nature of acute rheumatism accumulates, it becomes increasingly difficult to distinguish simple from infective endocarditis on pathological grounds. But owing to the different clinical features exhibited in each group respectively, the distinction is practically useful. Amongst the infective conditions liable to set up endocarditis, gonorrhœal infection deserves attention, and a considerable number of such cases have been reported since Leyden's important paper on the subject in 1893.

Brunton[10] draws attention to the importance of frequent temperature observations in the diagnosis, and adds that, "If you find a murmur at the heart, or even in cases where you find no murmur at the heart, if you find a temperature which runs a course very much like that of quotidian ague, in a case where you can trace no malaria, and where you find no indication of suppuration, it is very likely to be endocarditis." For such cases he recommends **Benzoate of Soda.**

In view of the favourable results which have in some cases attended the use of **Antistreptococcic Serum** in cases of malignant endocarditis, a paper by Phear[11] on the etiology and diagnosis of the conditions is of some interest. It must be clear, in the first place, that there is endocarditis, and secondly there must be evidence that the endocarditis is infective. Endocarditis is evidenced by signs and symptoms which are the mechanical outcome of the diseased state of the valve, and which are precisely similar to those of rheumatic or other origin. Some help may be afforded by the fact that malignant endocarditis

may attack parts of the endocardium not commonly involved by simple endocarditis, *e.g.*, the right side of the heart: also by the development of fresh murmurs whilst the patient is under observation, though this of itself is not certainly indicative of advancing disease, for it may be due to either recuperation or failure in the heart's action. Evidence of the endocarditis being infective is found in the existence of fever and in the occurrence of embolism. In the absence of fever the diagnosis of infective endocarditis cannot reasonably be made. The fever, as is well known, is very variable in its character, and may be of pyæmic, typhoid, or even of malarial type. Instances of the last have recently been recorded by Dock[12]; as a rule, however, the fever can only be described as irregular. The occurrence of embolism is of great importance, especially if evidence is forthcoming that the embolus is septic; for instance, a sudden rigor, followed by swelling and tenderness of the spleen, is valuable corroborative evidence. Thus, the association of valvular disease, recurring embolism, and fever for which no adequate cause can be found, is essential for a positive diagnosis of infective endocarditis, though in many other cases a suspicion as to its nature may be well founded. The micro-organisms most commonly found are the staphylococcus-pyogenes aureus, streptococcus pyogenes, and the diplococcus pneumoniæ. *A priori* it appears probable that the injection of antistreptococcic serum would do good only in those cases due to the streptococcus pyogenes, and would have no beneficial result in those due to other micro-organisms; and streptococcic cases have been recorded, *e.g.*, by Sainsbury,[13] in which recovery has resulted from the use of this serum, though failure has resulted, as in the case reported by Fox.[14]

What is wanted is a means of ascertaining whether streptococci are the cause of any given case of infective endocarditis. In some cases, *e.g.*, Sainsbury's, these have been found in the blood during life; but this is not always possible; none were discovered in the blood in Fox's case, though their existence was confirmed at the post-mortem examination. Cases have been recorded by Thayer and Blumer[15] in which the gonococcus was the cause of the disease; in these the use of the antistreptococcic serum would effect no good; but obviously it should be tried in every case in which the disease is not certainly due to organisms other than streptococci. The doses hitherto used have been 20 and 10 c.c. repeatedly injected.

Curtin[16] has drawn up the following table on the differential diagnosis of the quick pulse of *larval Graves's disease* and *simple irritated heart*:—

Undeveloped Graves's Disease.	Simple Irritated Heart.
(1,) Anæmia common.	(1,) Anæmia rarely, if ever, present.
(2,) Muscular tremors common.	(2,) Muscular tremors not common.
(3,) Fever generally accompanies each paroxysm of palpitation.	(3,) No fever with paroxysms.
(4,) Appears generally in weak, nervous women.	(4,) Oftenest in muscular men.
(5,) Rarely in tobacco users.	(5,) Commonest in tobacco users.
(6,) Slight, soft, quick, systolic murmurs, or a murmurish sound at the mitral orifice.	(6,) No murmur.
(7,) Heart sounds short and muffled.	(7,) Short, tack-hammer sounds.
(8,) Follows mental or other shocks.	(8,) Follows overwork or over-strain.
(9,) Prominence of one or both eyes.	(9,) No such sign.
(10,) May have a soft, slightly enlarged thyroid, varying in size.	(10,) Thyroid unaffected.
(11,) Hereditary.	(11,) Not considered hereditary.

Angina Pectoris.—Musser[17] discusses the relation of this affection with cardiac dilatation, and quotes cases to establish the following conclusions : (1,) That the pain of angina is mainly due to increased intraventricular pressure ; (2,) That dilatation is attended with subsidence of pain, because of the relief of this pressure ; (3,) That angina may occur in a patient who has had dilatation of the heart when the organic condition (dilatation) is removed by treatment; (4,) True angina, when it occurs in dilatation of the heart, admits of more favourable prognosis than if associated with other mural changes in the absence of dilatation.

Pawinski[18] lays stress on the occurrence of "stenocardial" feelings and "cardiac asthma" in patients with dry pericarditis, and considers how such cases may best be distinguished from the true angina pectoris resulting from changes in the coronary arteries. Pericardial friction may be absent, at least in light cases, and at the commencement. When, however, in a hitherto healthy individual the symptoms come on suddenly, and last for some hours without any, or with only short, intermissions, and when nitro-glycerin and even morphine fail to give relief, one should always suspect pericarditis, especially if local antiphlogistic remedies, such as wet cupping or leeches, give relief. Hot precordial applications were found more useful than cold ones.

The occurrence of fever and the history of a previous chill, wetting, or sore throat speak likewise in favour of pericardial origin for the symptoms, and so does the decided increase of the symptoms by precordial pressure. The latent form of pericarditis may be accompanied by a sudden change in the character of the pulse, which may be weaker and arrhythmic. Muscular rheumatism, intercostal neuralgia, pulmonary infarction, embolism of the coronary arteries, and rupture of the heart must of course be distinguished. Pawinski gives an interesting review of the literature of the subject.

Bradydiastole as a Prognostic Symptom.—Huchard[19] describes a peculiar rhythm of the heart under this name, characterised by a prolongation of the diastolic silence at the expense (so to speak) of the duration of the first sound (which is very short) and the interval between this and the second sound, so that the rate of the pulse is not markedly increased. It may be observed in comatose conditions, in grave cerebral hæmorrhage, in uræmia, etc. But the bradydiastolic rhythm is of special prognostic value in all chronic diseases of the heart and in digitalis poisoning. In these conditions it is the precursor of a progressive and ultimate degeneration. Digitalis no longer realises its beneficial effects, and is positively injurious. When it is observed, he adds, on one or more occasions without being followed by grave accident it should always be regarded as an important warning of a possible rapidly progressive dilatation of the heart, and showing that the heart receives in each of its revolutions much more blood than it can throw out. Phlebotomy is indicated for the relief of the engorged ventricles together with the administration in full doses of cardiac stimulants, as **Strychnine** or **Spartein** in full doses and by hypodermic injections of **Caffeine** and of **Camphorated Oil** (camphor, 1 part ; olive oil, 10 parts ; 5 c.c. for a dose).

Adherent Pericardium.—Broadbent[20] thinks the diagnosis of this condition is often impossible, and that it may lead to little or no interference with functional efficiency or appreciable physical alteration. On the other hand, it may seriously interfere with compensatory changes and greatly aggravate the effects of valvular disease or the degenerative changes of old age. He attached considerable diagnostic significance to complete arrest of normal respiratory movement in the epigastric triangle from interference with the descent of the diaphragm. Other evidence might be forthcoming, such as imperfect descent of the apex-beat during inspiration ; inadequate shifting of the impulse with change of posture ; systolic tugging the lower intercostal spaces posteriorly ; or the occurrence of hypertrophy and dilatation in the absence of valvular lesions.

Powell, in the same discussion, thought that the cases diagnosed during life were usually those in which the pericardium was adherent to the mediastinal structures as well as to the heart.

Paracentesis of the pericardium has been more frequently recommended of late as the best means of relieving serious symptoms of effusion. The best point for puncture is said to be in the fifth left interspace near the junction of sixth rib with its cartilage, or from two to two and a quarter inches from left border of sternum. Rotch advises puncture in the fifth right interspace at the sternal border, while Shattuck strongly favours the extreme apex of the left costo-xiphoid angle. An ordinary aspiration needle should be used for serous effusions, and the vacuum should be turned on as soon as the needle is well engaged in the tissues, so that the arrival of the point in the serous cavity may at once be marked by the appearance of fluid. Hare[21] has clearly shown that there is little to fear from accidental puncture of the heart.

Clinical employment of Digitalis.—Although it has not yet been possible satisfactorily to isolate and distinguish the active principles of digitalis leaves, we are at any rate aware of the fact that the crude drug contains several such principles, some of which are soluble in alcohol and not in water, whilst others are soluble in water and not in alcohol; and further that the respective effects of these principles upon the heart vary widely. Hence, for all practical purposes, the tincture and infusion of digitalis are two entirely different drugs (though allied in their action); while the powdered leaves combine the principles of both tincture and infusion, with probably some other substances in addition. It is necessary to bear these facts in mind when making observations on the clinical effects of the drug. Of the official preparations the tincture is no doubt the most trustworthy and useful, and in this country is most often employed. On the other hand, the employment of the isolated active principle, called digitalin, is preferred by many; but it should be remembered that the various preparations of digitalin on the market differ much in activity. Nativelle's digitalin is fifteen times stronger than Homolle's, for instance, weight for weight. The average dose of the former is $\frac{1}{100}$ to $\frac{1}{50}$ gr.

The clinical employment of digitalis in the treatment of heart disease is still in the empirical stage, and a rational explanation of its effects under various morbid conditions is much to be desired. Some progress is undoubtedly being made in this direction, and the matter receives a good deal of attention from recent writers on the subject.

The nutritive integrity of the cardiac substance would appear to be essential to the satisfactory action of digitalis; and in proportion as this is impaired—other things being equal—the drug will fail. Digitalis is therefore of little or no service, and likely rather to be harmful in the presence of marked degeneration. Again, digitalis is seldom or never indicated in neuroses of the heart—such as neurotic palpitation, simple intermission, or Graves's disease. Neither does it often agree when the pulse exhibits a high tension; and, if given at all under such circumstances, it should be with caution, and in tentative doses.

Much difference of opinion has prevailed as to the use of digitalis in aortic disease. Two reasons, *a priori*, readily suggest why the drug is likely to be unsuitable in aortic regurgitation. In the first place, aortic lesions usually occur in later life, and are more often of degenerative than of inflammatory origin, and are so frequently associated with corresponding disease of the coronary vessels. Thus the nutrition of the cardiac substance is particularly liable to fall below the normal standard. And, secondly, other things being equal, undue prolongation of the diastolic pause produced by digitalis must permit a proportionate increase in the amount of regurgitation. Of course, it is quite conceivable that this disadvantage may be more than neutralised by associated advantageous effects of the drug, and such, no doubt, is often the case.

Sir Douglas Powell[22] with great clearness points out that in aortic disease, so long as there is evidence of good compensation by steady, regular, forcible heart-beats; an increase in the capacity of the left ventricle to accommodate a larger measure of blood in diastole; a vigorous hypertrophy to enable the ventricle to propel the blood and maintain the circulation; and a steady, regular pulse, with a strong, abrupt beat, rapid subsidence, and low tension, digitalis is not wanted and cannot but be harmful. On the other hand, whenever the left ventricle begins to fail to respond to the heavy demands made upon it, tending to compromise the competency of the mitral valve, and to overload the pulmonary vessels together with the right side of the heart, digitalis may be of great service.

He enumerates the signs of such ingravescent failure in the following order:—

(1,) Irregularity in the heart's action.

(2,) A want of precision and sharpness in the character of the pulse.

(3,) Increased displacement of the apex-beat to the left, and extended impulse upwards.

(4,) The occurrence of irregular smaller beats as marked in the pulse, and appreciated at the heart.

(5,) The supervention of a soft systolic *bruit* over the mitral area.

(6,) Extension of the cardiac dulness to the right.

(7,) The almost complete replacement of the normal, regular, strong, slow collapsing pulse, normal in aortic regurgitation, by a rapid heart's action, irregular in force and frequency, with a corresponding small pulse having the characters of mitral rather than of aortic disease.

Nevertheless, these statements do not cover the whole ground. As Sir William Broadbent[23] points out, failure of compensation is manifested in two ways in aortic regurgitation. "In one, the effect is defective propulsion of blood into the arterial system manifested by faintness, giddiness, and sudden weakness of the legs; sometimes by anginoid pain; death is by syncope: in the other, there is obstructive backworking through the lungs and right heart giving rise to venous obstruction and dropsy, exactly as in mitral insufficiency. There are, in effect, aortic physical signs with mitral symptoms." The latter is the form of failure to which Powell refers, and is that in which the effects of digitalis are most strikingly useful. There is, however, a sphere of usefulness for digitalis in the other form of cardiac failure, though it is more restricted and uncertain. The drug has an undoubted power under favourable conditions of increasing the tonic resistance of the left ventricular muscle, and thus of moderating the distensibility of the cavity.

Practically the conditions for success are: (1,) Soundness of the cardiac muscle, and (2,) A prevention of the slowing—or, at least, *undue* slowing—of the heart's action. Thus it is more often available in the relatively young and well-nourished, and in earlier, rather than in later, stages. The second condition may be secured by association of digitalis and belladonna—which, in the writer's opinion, is often a most satisfactory combination in the circumstances under discussion. It must be admitted that considerable obscurity still prevails on many points. For instance, it is difficult to understand why digitalis sometimes so readily produces irregularity of the action of the heart in aortic regurgitation—and this, perhaps, very soon after it has appeared to be of good service.

Digitalis is almost never of use in aortic stenosis, pure and simple. Practically, dilatation of the left ventricle does not occur in aortic stenosis, until the cardiac muscle has begun to degenerate, and when this has advanced beyond a certain point the drug is not available. It should be remembered that, in general terms, digitalis is useful for

its power of counteracting dilatation, rather than for any power of directly strengthening the heart, as in the natural process of hypertrophy.

Sansom[24] observes that in the absence of dropsical effusion, digitalis does not cause diuresis. It has been generally assumed that digitalis causes diuresis by increasing the force and efficiency of the circulation through the kidney. It is more probable that the re-adjustment of the hydraulic equilibrium of the circulation (on the failure of which dropsical effusion depends) leads to the re-absorption of the fluid into the blood-vessels, and the diuresis which follows simply represents the excretion of the excess of watery fluid which is thus acquired.

Digitalis with Nitrites.—With the purpose of neutralising the constricting effects of digitalis upon the systemic arterioles, the drug is often administered in combination with some one of the nitrites—generally tri-nitrin. As the effect of the nitrites is so evanescent, it is desirable not to combine them in the same mixture with digitalis, but to give them separately at such intervals and in such doses as may be thought necessary.

Wilcox[25] finds that the tincture of **Strophanthus Kombé** (pubescent variety) is an active and eligible preparation, of which the maximum dose should be 5 min. four times daily. Of the commercial tinctures of strophanthus hispidus, many are nearly or quite inert. The fluid extracts of this variety and of both kinds of strophanthus kombé are unsuitable preparations by reason of the digestive disturbances they occasion, which appear to be independent of the amount of strophanthin contained in the crude drug. The hypodermic tabloids of strophanthin as prepared from all kinds of strophanthus are not irritating to the digestive tract in doses of $\frac{1}{350}$ to $\frac{1}{200}$ gr. The source and percentage of strophanthin appear to be without influence on their activity. The tabloids do not irritate when given subcutaneously, and the smaller dose ($\frac{1}{350}$ gr.) appears to be sufficient for all practical purposes. The reputation which strophanthus has of irritating the alimentary canal is probably based on the use of the fluid extracts; the author has not been able to obtain sufficient strophanthus bracteatus to investigate its clinical uses. He sums up the advantages of strophanthus over digitalis under three heads: (1,) Greater rapidity of action; (2,) Absence of cumulative effects; and, (3,) Non-interference with the calibre of the arteries. It is, therefore, particularly indicated in the aged, gouty, nephritic, and atheromatous, besides being the cardiac remedy *par excellence* for children; its reputation has suffered in the past from the variability, unsuitability, and unreliability of the

commercial preparations, for the improvement of which the present study makes.

Evidence has been contributed from various quarters during the past year as to the value of **Theobromine** as a diuretic in cardiac dropsies. It is not very soluble, and should be given in hot milk, or in cachets. It is chemically closely allied to caffeine—caffeine being trimethyl-xanthin, while theobromine is dimethyl-xanthin. According to Huchard,[26] the headache so often produced is best avoided by progressive dosage, beginning with 24 grains daily, in divided doses. As soon as the effect begins to wear off, which generally occurs about the end of a week, the drug should be stopped for a time, and a course of digitalis substituted.

Baronaki[27] recommends theobromine for the treatment of the asystole of old age. He proceeds as follows: The patient being placed upon an absolute milk diet, he receives 30 drops of the tincture of digitalis each day for four consecutive days. At the end of this time the digitalis is omitted, and he takes 7½ grains of theobromine in water every two hours until 45 grains are taken each day. Diuresis is established within twenty-four hours, the urine often reaching from four to six quarts, and with this the œdema and uræmic symptoms disappear. As soon as this is obtained the drug is stopped, else nausea, vomiting, vertigo, and symptoms of excitement will appear. Next **Potassium Iodide** is administered. Should the œdema reappear, the same course is to be pursued.

Treatment by **Baths** and **Exercise,** as carried out at Nauheim by Dr. Schott for many years, and since introduced in other places—both in this country and abroad—continues to attract considerable attention, but few new facts have come out. There is a growing feeling, however, that the claims of this mode of treatment have suffered from the exaggerated enthusiasm of some of its exponents, and from unreliable methods of physical examination. It is unquestionable that in selected cases the treatment has proved very beneficial. It is especially of service in cases of cardiac dilatation from loss of tone after influenza and other depressing diseases, and in many other cases of functional and neurotic disorder. In valvular disease in which compensation has entirely broken down, it is unsuitable, and is rarely desirable in aortic disease; but in mitral disease, especially in mitral stenosis, when compensation is *beginning* to fail or is only maintained with difficulty, and when digitalis fails to give relief, the Nauheim treatment may be very useful.

Until the circulation has recovered its equilibrium for a patient at rest, it is unreasonable to expect advantage from exercise in any

form. Of the various forms of exercise, massage is first available, then carefully-graded resistance exercises, and finally active exercise, such as prescribed under the Oertel system. The most trustworthy indication of applicability is amelioration of subjective symptoms, such as dyspnœa and palpitation, and the disappearance of œdema.

As the result of careful experiment on the effect of exercise upon the circulation, Brunton and Tunnicliffe[28] have arrived at the following medical conclusions :—

(1,) In cases where the heart is very feeble, so that the primary rise of blood pressure caused by even gentle exercise may interfere with its action, massage is the mode of treatment best adapted for restoring the circulation.

(2,) That when the heart is sufficiently strong to bear the increased resistance presented to it by the primary rise of pressure occurring during exercise, gentle exercise is preferable to massage, inasmuch as the subsequent diminution of resistance is greater in amount and of longer duration.

(3,) The difference between our results and those of Oertel affords a scientific basis for the practical rule which has been found so advantageous at Nauheim, namely, that the exercises shall not be carried to such an extent as to cause any acceleration of breathing on the part of the patient.

Treatment of Fatty Infiltration of the Heart.—Pliques[29] refers to the caution which is imperative in carrying out the very necessary process of reducing obesity in these cases. Thus, when a long interval is prescribed between meals, we must be guided by the force of the heart, and occupation of the patient. His general directions are those usually given—such as diuretic drinks, the elimination of sugar and fat from the diet up to a certain point, the abandonment of alcohol and tobacco, and regulated exercise. He recommends the careful use of **Thyroid Gland**, preferring the natural structure to the prepared extract. As a cardiac stimulant he prescribes the hypodermic injection of **Spartein,** and thinks its use may be necessary for a considerable time. It is well to have quite precise notions as to the amount of food to be allowed. While observing that a rigid rule is inadmissible, he gives preference to the moderate regime of Oertel—namely, from 4¾ to 5½ ozs. of meat; from ¾ to 1¼ oz. of fat; and from 2 to 3 ozs. of carbohydrates daily. With regard to exercise, it should be carefully graded, and it is in these cases that the Schott method is often of great value, when active exercise is attended with distress.

Treatment of Heart-failure in Arterio-sclerosis.—Marshall[30] contributes a paper on this subject. He recognises three stages :—

(1,) Early stage—thickened arteries with slight hypertrophy of heart ; increased intra-arterial blood pressure.

(2,) Middle stage—arteries thicker ; marked hypertrophy ; high arterial blood pressure.

(3,) Last stage—Arteries unchanged or somewhat dilated ; heart failing : marked cardiac dilatation ; gradually sinking blood pressure.

In the first and second stages probably nothing is more useful than the **Iodides,** with an occasional mercurial or saline purge ; vaso-dilators are advocated by some, but not with general approval. In the third stage, digitalis should be given sometimes at first ; it may be given alone with benefit, but in the majority of cases it is necessary to counterbalance the arterio-contracting influence of digitalis by means of vaso-dilators (members of the nitrite group). The influence, however, is diminished and delayed by digitalis—nitroglycerin least, the solid nitrites most. For this reason, the dose of digitalis should be small, and the dose of the nitrite should be relatively large and frequent. A good plan is to give a moderate dose of **Digitalis** once daily, or less often, while **Nitroglycerin** or **Sodium Nitrite** should be given every three hours, or **Erythrol-tetranitrate** every six hours. For the same reasons, if it is desired to give **Sp. Ætheris nit.** with digitalis, they should not be given in the same mixture, but separately, in accordance with the rules above mentioned.

Rumpf[31] calls attention to the fact that no attempt has been yet made in treatment to counteract the calcareous changes present in the coronary and other arteries of the body. Frequently a commencing cardiac insufficiency may be counteracted by **Rest,** strict limitation of **Diet,** with or without digitalis. There can be no doubt that a diet restricted to ¾ up to 1 litre of milk per day may, along with other measures, produce the best results. This can, however, only be carried out for a short time, and the results are less favourable when 2 or 3 litres are allowed. The author has often found that milk suits some of these cases less well than a mixed diet. He calculates out the amount of lime and magnesia salts given when 2 to 3 litres of milk are administered. The corresponding amount of lime salts is not found in the stools, and thus they must pass into the blood. The deposit of lime salts may result from their presence there as well as from altered chemical processes. The amount of lime salts in the blood varies. The author gives a diet consisting of meat (250 g.) and bread, fish, potatoes, and apples

(each 100 g.), and this contains a minimum of lime salts. Besides milk, cheese, eggs, cocoa, etc., are rich in these salts. Water may be used in place of milk, and the author recommends a palatable beverage containing, besides carbonic acid, sodic chloride and citrate. Lime salts are chiefly excreted by the bowel and not by the kidneys. The author discusses the means by which the excretion of lime salts may be increased. Copious diuresis has to be considered here. Digitalis has certain contra-indications, and calomel is not always efficient. Diuretin is a valuable addition to our resources. The author relates investigations carried out in cases where it is shown that with a diet containing few lime salts, a diminution of lime salts in the body may be effected. The excretion of lime salts is increased by the use of hydrochloric and lactic acids, and also by the use of organic sodic salts. The author has carried out treatment on these lines in nine cases. There was mostly an increased diuresis, the favourable effect of which is very generally admitted. Further investigations are required, but it appears probable that the varying richness of the blood and other fluids of the body in lime salts is not a matter of indifference. If they promote coagulation they may thus exercise an unfavourable effect, especially when the vessels are calcareous. The deposit of lime salts in the coronary arteries is of great importance. Whether by a long-continued loss of lime salts to the body, calcareous deposits in the vessels may diminish, requires further investigation. The patients are often less well when the diuretics are omitted, even if the limited diet is continued. At any rate, by the use of sodic salts a greater amount of phosphate of lime can be brought into solution than without them. In some cases, as in those complicated by granular kidney, the treatment is without effect. The author advocates the new principle of introducing into the body only as much lime salts as are excreted in the urine and stools. The heart must be given as much rest as possible, but light and carefully regulated exercises often increase the power of the heart. The other therapeutic measures are also to be adopted.

Tachycardia.—This term has come into such general use, that it is worth while to enquire what is really meant by it. Some would apply it to every quick pulse—say anything over 150 per minute. But, as Clifford Allbutt points out, if this example is to be followed, "there is an end to clinical nomenclature." Neither can any distinction be drawn between cases of tachycardia with, and those without organic lesions. The rate of the heart beat depends upon a variety of factors, most of which are imperfectly understood, and in the main undue frequency of the pulse is merged with the

morbid condition (functional or organic) with which it is associated, and apart from which it cannot practically be considered. It is undoubtedly instructive to analyse the pathological condition presented by such cases, for the purpose of ascertaining as far as possible the exact chain of causation as applied to the action; but this is something quite different from erecting a disease-type in which undue frequency of heart-beat constitutes the essential and characteristic feature. From this point of view only one such type has so far been recognised under the name of "paroxysmal tachycardia," which is characterised by attacks of rapid heart coming on suddenly, and departing suddenly, and attended with certain other symptoms, objective and subjective, and consistent though not always coincident with a heart apparently sound. And, be it understood, this reservation only holds good until our knowledge has sufficiently advanced to enable us to refer the disturbance to its special cause, or to break up the group of cases coming under this head, into smaller groups, according as the disturbance depends upon this or that cause. There is the same relation between tachycardia and undue frequeney of heart-beat in general, as between asthma and dyspnœa in general, and as between epilepsy and convulsion in general.

Sansom[32] writes on neuropathic dyspepsia, and its correllations with disturbances of the rhythm of the heart, and deals with seven groups of cases: (1,) Essential tachycardia; (2,) Tachycardia associated with some of the symptoms of Graves's disease; (3,) Paroxysmal tachycardia; (4,) Persistent cardiac arrhythmia; (5,) Persistent bradycardia; (6,) Paroxysmal bradycardia; (7,) Paroxysmal dyspepsia without disturbance of cardiac rhythm.

He draws the following conclusions: (1,) Essential tachycardia is not accompanied by dyspepsia; (2,) Paroxysmal tachycardia and the forms of tachycardia accompanied by signs, even slight, of Basedow's disease are very frequently associated with crises of dyspepsia; (3,) Extreme cardiac arrhythmia often occurs without manifestations of dyspepsia; (4,) Gastro-intestinal irritations do not produce cardiac arrhythmia without the concurrence of predisposing causes; (5,) Cardiac arrhythmia often replaces tachycardia in Basedow's disease; in such cases paroxysmal dyspepsia is frequent; (6,) Well-marked bradycardia may exist without signs of dyspepsia; (7,) Paroxysmal bradycardia is associated with crises of dyspepsia, and these crises occur in some cases of persistent bradycardia; (8,) There is no defined relation between dyspepsia and the structural diseases of the heart which sometimes are manifested in cases

of disturbed heart rhythm ; (9,) It is most probable that all forms of disturbed rhythm of the heart are due to marked affections of the nerve-element at the origin or in the course of the vagi nerves or the nerve mechanism of the cardiac reflex in the upper part of the spinal cord ; (10,) The attendant dyspepsia is due to an extension of the disturbance to the areas of origin or course of the gastro-intestinal branches of the vagi nerves ; (11,) All such alterations of the cardiac reflex nerve mechanism, as well as the various disturbances of digestion, may be due to the toxic agencies of influenza or allied forms of infectious disease.

Thomson[33] publishes a series of highly interesting cases, which cannot be adequately abstracted within the limits of our space, showing the frequent inter-dependence of tachycardia with digestive disorders. His results attest the importance of a careful investigation of the digestive process in all cases of tachycardia. He especially condemns the use of highly nitrogenised articles of food, having repeatedly found the symptoms exaggerated by red meat. A milk diet, when made digestible by fermentation or by peptonising it, is by all odds, he says, the most conducive to restoration, and is often so distinctly curative in its effects that it affords of itself a strong presumption of the digestive origin of the complaint.

Chauffard[34] reports a case of paroxysmal tachycardia treated by intravenous injection of **Serum.** A man was seized with acute tachycardia, and on the third day was found in intense asystolic condition, which on the fifth day had become a state of apparent death. Not succeeding in slowing the cardiac pulsations (196 to 220 per minute), or raising the arterial tension, he had recourse to intravenous injection of 1250 cubic ctms. (2½ pints) of artificial serum. Then the pulse beat was 100, but the tension was as low as 14. An hour later the patient had no anguish and breathed freely ; the pulse was still 100, but the tension had risen to 21. The next day a diarrhœa replaced the polyuria usual after these serum injections, and which reappeared on the third day, when the diarrhœa ceased. In grave forms of paroxysmal tachycardia, when syncope threatens, intravenous serum injections quickly increase the tension.

Bradycardia. — The term as indicating a slow pulse is open to exactly the same criticism as that already made with regard to tachycardia. Clifford Allbutt goes so far as to assert "that the word is but wind. We know of no symptom-group to be thus designated. Bradycardia is slow pulse and nothing more." Not infrequently "slow pulse" is an idiosyncracy, unaccompanied with any disturbance of health. Among the conditions with which we from

time to time meet with slow pulse, are fatty and other degenerative change in the heart wall ; exhaustion, as in convalescence after fevers or sexual excesses ; in certain nervous diseases, such as meningitis, hysteria, or melancholia ; pain ; reflex derangement, from peripheral irritation in stomach, bowel, pelvic organs, etc. ; toxæmia, from within, as in diphtheria, uræmia, and certain forms of dyspepsia ; or from without, in lead, tobacco, opium, chloroform, and digitalis poisoning. Slow pulse may be unattended with subjective discomfort, or on the other hand it may give rise to vertigo, syncope (grave signs, suggestive of serious cardiac degeneration), or more rarely convulsions.

Morrison [35] contributes an interesting article on the treatment of bradycardia. In cases dependent upon increased endocardial pressure, he advises the reduction of the blood-weight by a restriction of fluids, the adoption of a nutritious and concentrated dietary, the use of vaso-dilator remedies, and a semi-recumbent posture. In persistent bradycardia of a chronic cardial type, he says, that when the retardation is equal and regular, and the respiratory rate is either slightly reduced or normal, the heart may be regarded as compensated, and the less interference the better, beyond the avoidance of everything which tends to raise endocardial pressure. On the other hand, when such a case is in a syncopal crisis, we are dealing with a superadded factor, in the shape of suddenly increased dilatation, as shown by an increased respiratory rate. Under these circumstances it becomes a question how best, safest and most quickly the heart may be unloaded. For this purpose venesection may be often successful if boldly and promptly carried out. As to cardiac tonics, such as digitalis, under these circumstances, there is as a rule, a very slow response, and though, if carefully pushed, they may sometimes be beneficial, the author would prefer to trust rather to strychnine and tri-nitrin.

In cases of extra-cardial bradycardia, any attempt to accelerate the rate when there is a persistent cause in operation, such as meningitis, is manifestly out of place. Bradycardia from exhaustion after fevers must be by combating the general debility, and not by attempts at artificial acceleration of the weakened organs. If, however, syncope should threaten, the **Nitrites** and **Belladonna** may be expected to be of service. Similarly the treatment of slow pulse due to constitutional disease merges in that of the latter. In toxic cases, of course, the primary object is to remove the primary cause as far as possible. In opium and chloroform poisoning, the fatal ischæmia of the respiratory and cardiac centres may be best averted by artificial respiration, attempts to rouse the consciousness of the

patient, and the use of **Strychnine, Atropine,** and the nitrites. In extra-cardial cases generally, the use of cardio-accelerators is more useful than in those of cardial origin, and is frequently curative.

An instructive paper on paroxysmal tachycardia appeared in the "Edin. Med. Journ.," April, 1897. The reader should also consult the article on this subject in Clifford Allbutt's "System of Med.," vol. v.

REFERENCES.—[1] "Brit. Med. Journ.," Jan. 15, 1898; [2] "New York Med. Journ.," Dec. 4, 1897; [3] "Lancet," Oct. 10, 1896; [4] "New York Med. Rec.," April 10, 1897; [5] "Brit. Med. Journ.," Oct. 16, 1897; [6] "Clin. Journ.," Dec. 22, 1897; [7] "Brit. Med. Journ.," Oct. 16, 1897; [8] "Lancet," Nov. 13, 1897; [9] "Brit. Med. Journ.," Feb. 5, 1898; [10] "The Hospital," No. 560, v. xxii; [11] "Clin. Journ.," May 12, 19, 1897; [12] "New York Med. Journ.," Jan. 30, 1897; [13] "Lancet," Oct. 17, 1897; [14] Ibid., Feb. 20, 1897; [15] "Johns Hop. Hosp. Bull.," April, 1896; [16] "Med. Fortnightly," Jan. 1, 1897; [17] "Amer. Journ. Med. Sci.," Sept., 1897; [18] "Deut. Arch. für. klin. Med.," v. lviii, p. 565; [19] "Journ. des Prat.," Oct. 30, 1897; [20] "Brit. Med. Journ.," Jan. 15, 1898; [21] "Therap. Gaz.," Feb. 15, 1898; [22] "Brit. Med. Journ.," April 2, 1898; [23] "Heart Disease," p. 117, 1898; [24] "Allbutt's Sys. of Med.," vol. v; [25] "Journ. Amer. Med. Assoc.," Sept. 11, 1897; [26] "L' Union méd.," No. 11, 1896; [27] "Bull. gén. de thérap.," 8 liv. p. 380, 1897; [28] "Brit. Med. Journ.," Oct. 16, 1897; [29] "Rev. méd.," Jan. 31, 1898; [30] "Brit. Med. Journ.," Dec. 11, 1897; [31] "Berlin. klin. Woch.," March 29 and Ap. 25, 1897; [32] "Lancet," Aug. 28, 1897; [33] "New York Med. Rec.," Aug. 14, 1897; [34] "L' Union méd.," No. 18, 1896; [35] "Treatment," April 28, 1898.

HEART (Wounds of). (See "Thorax.")

HEMIPLEGIA. (See "Paralysis.")

HERNIA. *Priestley Leech, M.D., F.R.C.S.*

Inguinal.—M.M. Nélaton and Ombrédanne[1] have invented and carried out a new method of disposing of the spermatic cord in the radical cure of inguinal hernia.

The method is as follows: The anterior wall of the inguinal canal is slit up for its entire length, the hernia reduced and the sac resected, and the spermatic cord is freed from adhesions and from its connections with the cremasteric fibres. The posterior wall of the canal is then divided and a grooved director pushed through it at the upper border of the pubic bone, and passed upwards to the internal ring. With an instrument like a punch, a button of bone as large as a centime piece is removed from the thin part of the pubic bone at a point not quite a third of an inch below the upper border; a chain saw is passed through the hole, and the superjacent bridge of bone is divided at its inner edge; the bridge is raised in an outward direction,

and the cord dropped into the perforation in the pubic bone, and the bridge replaced and secured in position by catgut sutures. The abdominal wall is secured in two layers ; the deep layer is closed with a continuous *suture en surjet* carried from the conjoined tendon to Poupart's ligament, and with the same thread the superficial layer, consisting of the aponeurosis of the external oblique muscle, is closed from below upwards.

The only disadvantage of this operation is that of eventual damage to the cord by the growth of new bone round it. If this occurred there would first be varicocele and œdema, and there would be time to liberate the cord by cutting a channel downwards and dropping it beneath the bone.

Borchardt[2] gives notes of four cases of large hernia, treated by turning up a flap of bone with its attached periosteum to close the hernial ring. The results were satisfactory.

Barker[3] gives the results of two hundred consecutive operations for the radical cure of hernia. The risks are small ; there were only three deaths out of two hundred cases ; of the fatal cases one died from ether poisoning, one from intestinal obstruction, for which no cause could be found *post mortem*, and one died from septic peritonitis. In twenty-six cases there may be said to have been definite discharge from the wound, varying from slight turbid oozing from a stitch-hole or an unclosed angle to plain suppuration. In a considerable number of these twenty-six cases the cause was plainly wetting of the dressing with urine. Silk was used for stitches, and in twenty cases sutures came away at one time or other.

In seventy-nine cases Barker's operation was done ; in fifty-seven, Bassini's ; in seven, Kocher's ; and in two, McEwen's. As regards recurrence, evidence is very difficult to obtain, but he has seldom heard of cases of recurrence.

He considers that Bassini's operation, when carefully carried out, is the best of any yet devised. In nine cases of ventral and umbilical herniæ he has used buried silver wire sutures with good effect.

Ventral and Umbilical.—Goldspohn,[4] of Chicago, has used double wire sutures to overcome the retraction of the muscular walls in operating on large ventral and umbilical herniæ. He uses double wire sutures 20 to 30 cm. (8 to 12 inches) in length, placed transversely about 6 cm. (2½ inches) apart.

Three to five of these sutures are passed as follows : One or two fingers of one hand are passed into the abdominal cavity and held against the adjacent parietal peritoneum ; a long, straight, blunt-pointed pedicle needle, with an eye that opens toward the side, is

passed from one of the margins of the wound outward laterally between the rectus muscle and the posterior layer of its sheath; it emerges at the linea semilunaris, and continues outwards through fat and skin; the double wire is then hooked at its closed end into the eye of the long needle, and is drawn by it into the wound. The handle of the needle is then turned in the opposite direction, and its point carrying the wire is pushed through on the opposite side of the wound, between the rectus and the posterior layer of its sheath as before, the finger standing on guard inside the abdomen to keep the posterior layer, the transversalis fascia, and the peritoneum between the abdominal cavity and the wire, and shield the abdominal viscera from contact with the wire.

The wire is then unhooked from the needle, and its ends are twisted on each side over a button of iodoform gauze, or lead, with gentle tension after the needle has been withdrawn. When sufficient of these wire sutures have been inserted they are all tightened so as to bring the edges of the wound near each other but not in contact; the peritoneum and posterior layer of the rectus sheath are sewn together, and the rectus fascia is united in front of the wires by a substantial catgut suture that is prepared to hold two weeks. After this is done the final degree of tension is placed upon the wires, so that the catgut sutures which have been introduced are relieved of nearly all tension, and the buttons on the wire sink well into the skin. The skin is then united by silkworm-gut sutures.

REFERENCES.—[1] "Presse mèd.," July 31, 1897, and "New York Med. Journ.," Aug. 28, 1897; [2] "Beiträge z. klin. Chir.," Band xx., Heft 2; [3] "Brit. Med. Journ.," p. 712, Sept. 10, 1898; [4] "Amer. Gynec. and Obst. Journ.," Sept., 1897, quoted in "Amer. Med. and Surg. Bull.," Feb. 10, 1898.

HIP (Amputation of) *Priestley Leech, M.D., F.R.C.S.*

Dr. Felix Franke[1] advises amputation at the neck of the femur in place of disarticulation at the hip joint, and says it has the following advantages: it saves time, for the neck of the femur is soon divided with a broad chisel; the hollow is already filled by the head of the femur and the time of healing is shortened. Necrosis of the head of the femur need not be feared, as it is supplied by the artery to the ligamentum teres.

He advises abduction of the thigh when dividing the neck by the chisel.

Control of Hæmorrhage.—Lynn Thomas[2] has tried a method for controlling hæmorrhage where no special apparatus is at hand.

The femoral pulse is felt for immediately below Poupart's ligament.

Two stab punctures are then made in the skin, one about an inch outside the pulse, and the other about two inches to its inner side, *i.e.*, immediately below the pubic spine. An aneurysm needle with two eyes (Horsley's pattern) is then pushed from one puncture well behind the artery and vein to the other stab puncture, and two long thick silk ligatures were carried through in withdrawing the needle. A pad of gamgee tissue is rolled up and placed over the artery between the punctures, and the two silks tied separately over the pad. It is better to tie only the first stage of the surgeon's knot, and clamp with forceps, as it can easily be retied if necessary when letting go after the visible vessels on the face of the stump have been tied. Doyen's broad ligament forceps may be used in controlling the hæmorrhage, by making a stab puncture on the outside of the vessels and pushing one blade of the forceps behind the vessels and then clamping the forceps.

REFERENCES.—[1] "Cent. f. Chir.," No. xlv., 1897 ; [2] "Lancet," April 23, 1898.

HYDROCELE. *Priestley Leech, M.D., F.R.C.S.*

TREATMENT.—Dr. J. Neumann[1] has used the following method of treating hydrocele in six cases with success. The skin is carefully disinfected, and a trocar is then introduced into the sac; while the fluid is flowing out the trocar is pushed up higher in the sac, left in, and a slightly compressing bandage applied. The cannula is removed in two days, and cooling lotions (*e.g.*, lead lotion) applied to the scrotum. Adhesion of the two layers of the sac followed without suppuration or inflammation. The time of treatment lasts from seven to nine days. Strict asepsis is necessary.

Dr. Pilate and Dr. Vissemans[2] have practised the following method of treatment: The scrotum is cleaned with a brush and hot soap and water, and then with perchloride solution. A trocar is inserted into the sac and the fluid drawn off, a 3 per cent. solution of **Carbolic Water** (which has been previously boiled) is then injected. This solution is allowed to come out, and is seen to contain fibrinous flocculi. The washing out is repeated four or five times until the liquid returns quite clear. The instrument is withdrawn, the puncture closed in the usual way, and a suspensory bandage put on. Owing to the anæsthetic effect of the carbolic, the patient feels no pain. Some further effusion usually occurs in the sac in four or five days, but it soon subsides. The suspensory bandage must be worn for a time, and the treatment is only recommended in simple cases occurring in young subjects.

Mr. Miller[3] gives his further experience of treating hydrocele with injections of solution of **Corrosive Sublimate.** He gives notes of

four cases treated by himself, and refers to nine treated by other surgeons. He uses a solution of a grain to the ounce, and after withdrawal of the hydrocele fluid he injects 15 minims of the solution. In the course of two days some effusion takes place, but it is soon absorbed. He says it is as suitable for old as well as for recent cases.

REFERENCES.—[1] Quoted in "Indian Lancet," June 1, 1897; [2] "Lancet," Aug. 7, 1897; [3] Ibid., Sept. 4, 1897.

HYPEREMESIS GRAVIDARUM. (See "Pregnancy, Vomiting of.")

HYPERIDROSIS. T. *Colcott Fox, M.B.*

Gaucher[1] states that in *general hyperidrosis, i.e.*, in symptomatic sweating, the best internal remedies are **Tannin, Agaricin, Phosphate of Lime, Atropine, Iron** and **Quinine Tonics.** In nervous patients antispasmodics, as bromide of potassium or valerianate of ammonium, or extract of valerian may be tried. Locally, vinegar or alcohol lotions, or one of the following astringent lotions are useful:—

℞ Tannin, 15 grns.; Alcohol, 7 ozs.

℞ Alum, 150 grns.; Water, 8 ozs.

℞ Borax, 150 grns.; Water, 8 ozs.

℞ Liq. Plumbi Subacetatis, 3 drachms; Water, 8 ozs.

Local Hyperidrosis, as sweating of the feet, may be treated by a prolonged foot-bath containing decoction of oak bark, or oak leaves, in which is dissolved 5 drachms of borax in each quart. This is to be followed by a dusting with:—

℞ Finely Powdered Chalk, 3 ozs.; Salicylic Acid, 30 to 45 grs.

Maceration of the skin between the toes can be prevented by separating them with lint. The application of a **Continuous Current of Electricity** is sometimes good.

Where the sweat undergoes an alkaline fermentation subsequent to its secretion and *stinks* (*bromidrosis*) **Alcoholic Lotions** are best (℥v of borax with ℥ss of tincture of benzoin to the litre of alcohol), or 1 to 2 per cent. solution of **Potassium Permanganate,** or a weak solution of **Chloride of Iron,** or a 5 per cent. alcoholic solution of **Naphthol** with a very little **Glycerin,** followed by a talc and salicylic acid powdering.

We have culled the following recommendations during the year:—

Sweating Feet.[2]—Wash once or twice daily with a 2 per cent. solution of **Formalin.** Especial attention should be paid to the plantar surface and to the interdigital spaces. The fœtid odour usually disappears after a few days. It is well to rinse the stockings

and shoes also with the same solution, particularly the inner side of the sole of latter, which should afterwards be wiped dry.

Paul Richter[3] insists on the disinfection of the boots. Put into the boots a solution of **Formalin** and leave for one hour, or **Phenicated Solution.**

Friction the feet with formalin. Powder the socks and toes with **Tannoform** or **Tartaric Acid.**

Gerdeck[4] recommends that undiluted formalin be pencilled over the feet of soldiers three or four times at intervals of about six hours, and that 4 or 5 drops of the same fluid be dropped into the boot to disinfect it and to protect the leather. It is then a prophylactic, and enables soldiers who habitually suffer from sore feet to march without difficulty. Even where a concentrated solution of formalin is applied to the feet a few times, the feet do not sweat again for two or three weeks.

Here are some further formulæ :—

℞	Bals. Peruvian	ʒss	Chloral Hydrat.	ʒij
	Acidi Formici	ʒij	Alcohol	ʒv

M. Sig.—Apply with a cotton swab, or over large surfaces as a spray.—Heusner.[5]

For *Hyperidrosis of Hands* :—Mode

℞	Boracis		Glycerin	
	Acid Salicylate	āā 15	Alcohol Diluted	āā 60
	Acid Borici	5		

Unna's[6] *Ichthyol Ointment for Profuse Sweating of the Feet.*—The formula is as follows :—

℞	Ichthyol	25 parts	Lanolin	25 parts
	Water	15 ,,		

M. Oint.

A Liniment for Hyperidrosis of the Feet and for Abrasions from Ill-fitting Shoes.—The "Progrès médical"[7] gives the following formula :—

℞	Commercial Soft Soap	52 parts	Zinc Oxide	6 parts
	Water	27 ,,	Essence of Lavender	q. s.
	Vaseline	15 ,,		

M.

For Hyperidrosis, especially of the Feet (*Sweating Feet*).—Brocq[8] applies twice daily a mixture of **Naphthol,** 5 parts ; **Glycerin,** 10 parts ; and **Alcohol,** 100 parts ; then powders with starch, pure or mixed with naphthol, with pads between the toes.

Or use :—

℞	Permanganate of Potash	1 grm.	Dis. Water	100 grms.
	Thymol	30 c.grms.		

Wear soles made of paper, felt or muslin, soaked in this solution and then dried. Change them every day, and powder with a preparation containing permanganate.

Or **Salicylic Acid, Quinine, Tannin,** preparations of **Iron,** may all be employed, either dry or liquid.

Lastly, in a discussion in the "Brit. Med. Journ.," Dr. Waldo, of Bristol, recommends **Ichthyol** internally, from which sulphur is eliminated in the sweat and sterilises it.

Dr. Slade Baker (Abingdon) recommends the remedy suggested by Dr. George Thin.[9] The stockings are changed twice daily, and the feet of the stockings are placed in a jar containing a saturated solution of **Boracic Acid.** They are then dried and are fit to wear again. The boracic acid effectually destroys the smell. But to kill the bacteria in the stockings is not enough. The leather in the bottom of the boot is wet, and soddens, and smells as vilely as the stocking. This difficulty is not over by the use of cork soles. The patient is directed to get half a dozen. A pair must only be worn one day unchanged; at night they are placed in the boracic jar, and put aside the next day to dry. If these directions be accurately carried out, the evil smell is perfectly destroyed. The soles of the feet may be washed in a boracic acid solution. Dr. Baker states that he has adopted the treatment in a series of cases without failure.

Dr. W. Richardson Rice (Coventry) writes: Increase in the amount of sweat is usually accompanied by dilatation of the cutaneous vessels, but it often also occurs when the opposite condition prevails. From this we may infer that the secretion of sweat is under the direct control of a nervous apparatus going to the gland, rather than influenced by the condition of the vaso-dilator or vaso-constrictor nerves. Hence astringents generally fail. I have found **Belladonna** the most effectual remedy in these cases. It appears to give nerve tone to the glands, and in order that it may penetrate through the sebaceous matter on the skin, it should be combined with **Chloroform** or **Ether.** In my experience the formula most useful is ℥j of chloroform in ℥j of lin. belladonnæ well rubbed in night and morning.

REFERENCES.—[1] "Journ. des Prat.," Oct. 23, 1897; [2] "Med. Age," Aug. 10, 1897; [3] "Allg. med. Central.," No. 73, 1897; [4] "Med. News," July 2, 1898; "Deut. Mil. Artz. Zeits."; [5] "Med. Record," Feb. 12, 1898; [6] "Pract.," April, 1898; "Gaz. hebdom. de méd. et de chir.," Oct. 14; [7] "New York Med. Journ.," Oct. 9, 1897; [8] "Indian Lancet," Sept. 1, 1897; [9] "Brit. Med. Journ.," Sept. 18, 1880.

HYPERTRICHOSIS. (See "Skin Diseases.")

IMPETIGO CONTAGIOSA. *T. Colcott Fox, M.B.*

Sabouraud[1] insists that impetigo is caused by the staphylococcus aureus and not by a streptococcus. Its treatment consists essentially in continuous dressings with a camphorated solution of **Sulphate of Zinc** and **Sulphate of Copper** (eau d'alibour, one-third diluted), after rupture of the vesicles and detachment of the crusts.

F. J. Shepherd states that the following method of treatment has yielded uniform good results in the dermatological clinic of the Montreal General Hospital during the last ten years or more.

The crusts of dried pus and serous exudation are picked off the patches of impetigo (in some cases it is necessary to soften them previously with a little sweet oil) and an ointment of the **Ammonio-Chloride of Mercury** applied directly to the raw surface.

The strength of the ointment varies from the pure unguentum hydrargyrum ammoniatum (B. Ph.) to equal parts of this and unguentum simplex, the latter being used for very young children.

That this preparation of mercury can be used without the slightest danger of causing irritation has been abundantly proved by a long experience of a large number of cases, and that it is also a specific in this disease the records of the hospital show, as, with few exceptions, a week or ten days effects a complete cure.

The disease described under the title "Pemphigus Contagiosus Tropicus," in China, by Patrick Manson, is suspected by some authors to be a form of impetigo contagiosa. This idea obtains a certain support from the remarks of the Rev. Hunter Finlay,[2] M.D., of Townsville, Queensland. He states that during his seventeen years' residence in North Queensland, he had seen many cases of what he describes as *pemphigus contagiosus tropicus*. It is very prevalent in the hot season, particularly in children, and is popularly known as "native pock." As it appears coincidently with the ripening of the mangoes, many attribute the affection to this fruit—erroneously, in Dr. Finlay's opinion. The disease is quite benign, and unaccompanied by fever or constitutional symptoms. It commences by one or two blebs containing clear serum, very much like chicken-pox, which may be simulated when a crop of lesions appear on the back. The blebs are very irritable and become torn, and in this way the disease is spread by auto-inoculation, and to other persons. Dr. Finlay allays inflammation by a lotion of 1 part of **Liquor Plumbi**

Subacetatis to 7 of water, and applies the following disinfecting and soothing ointment :—

℞ Pulv. Acetanilid Hydrarg. Subchlor. āā gr. v (for adults, gr. x)	Vaselin. Alb. ℥j

Inft. ung. Sig.—To be applied to the affected parts morning and evening.

In connection with this tropical affection the reader is referred to the section on "Sweat Eruptions."

REFERENCES.—[1] "Arch. de méd. des Enfants," p. 21, Jan., 1898 ; [2] "Austral. Med. Gaz.," March 21, 1898.

INDIGESTION OF CHILDREN. (See "Diarrhœa," "Infant Feeding," and "Scorbutus in Infants.")

INFANT FEEDING. (See also "Scorbutus in Infants.")

Henry Dwight Chapin, M.D., New York.

Dr. L. E. Holt[1] reviews the present status of infant feeding, and considers the following points as well established :—

(1,) That good breast milk is the best infant food.

(2,) That no substitute for breast milk can be trusted which does not furnish essentially the same elements, fat, sugar, proteids, etc., as breast milk.

(3,) That these elements are found only in the milk of other animals, cow's milk being the only one that is available for general use.

(4,) That cow's milk requires some modification before it is fed to infants ; first, because the proportions of the different elements (fat, sugar, etc.), are not the same as in breast milk ; and secondly because some of these elements, notably the proteids, are not identical with those of breast milk.

Dr. Henry Koplik[2] instances cases of milk poisoning that have occurred in infants and children who have been fed upon pasteurised milk. The following deleterious germs are, according to Koplik, not destroyed by pasteurisation : (*a*,) The lactic-acid forming group ; (*b*,) The butyric-acid forming group; (*c*,) The peptonising group of bacteria. Complete sterilisation is accordingly advised.

Dr. R. G. Freeman[3] has consulted the members of the American Pediatric Society, by letter, and finds the great majority favour pasteurisation rather than sterilisation of milk for infant feeding. High temperature sterilisation causes certain chemical changes in milk. The change in the taste of milk occurs at 70° C. (158° F.) and the changes found by chemists begin with a temperature of about 80° C.

(176° F.). Clinically it has been found that children fed on milk heated to a boiling temperature do not thrive as those fed on raw milk, and also that this bottled milk seems to be a predisposing cause of scurvy. On this account it would seem that the lowest temperature which is efficient should be used for sterilising.

Dr. Knoepfelmacher[4] has studied the digestion of milk-fat in young children with the following results: (1,) That the fat in the fæces of adults and children fed upon an exclusive milk-diet contains 12 to 20 per cent. olein, the greater part of which belongs to the fat discharged with the digestive juices, a smaller proportion to unabsorbed milk-fat; (2,) That the fat in the stools of nurslings contains 28·8 to 37·8 per cent. of olein. Only a very slight proportion of this, about 5 per cent., corresponds to the partly digested fat, the rest of the olein of the fæces-fat coming from the unabsorbed milk-fat; (3,) That in the nursling the appropriation of milk-fat is somewhat less active than in older children and adults.

Dr. Vaudin[5] by adding a few drops of a solution of indigo-carmine to milk finds that the colour produced by it disappears as the action of the microbes in the milk decolourises it. He determines the age of the milk by the duration of the tint; thus in fresh milk it lasts about twelve hours at 15° C., five hours at 15 to 20° C., and four hours at 20° C.

REFERENCES.—[1] "Arch. Ped.," vol. xiv., No. 11, 1897; [2] "New York Med. Rec.," Feb. 19, 1898; [3] "Arch. Ped.," vol. xv., No. 7, 1898; [4] "Wiener. klin. Woch.," No. 30, 1897; [5] "Bull. de l'Acad. de méd.," Nov. 30, 1897.

INFANTILE PARALYSIS. (See "Paralysis.")

INTESTINE (Suture of). *Priestley Leech, M.D., F.R.C.S.*

Kuzmik,[1] after a lengthy discussion, comes to the following conclusions: Solution of continuity of the intestinal tract is preferably repaired by suture; the best being the Czerny-Lembert, the Kummer, and when speed is an important element the Maunsell Ullmann. If it is imperative that the operation should be completed at the earliest possible moment, the Murphy button and direct suture are preferable; the button should always be reinforced by the Lembert suture.

Dr. Martin Gil, of Malaga,[2] has tried in dogs some decalcified ivory discs, for end to end and lateral anastomosis of the bowel. He has pieces of decalcified ivory turned in concavo-convex shapes; one piece is furnished with a hollow stem or shank which fits into a hole in the other piece. Besides the central hole there are two other very small

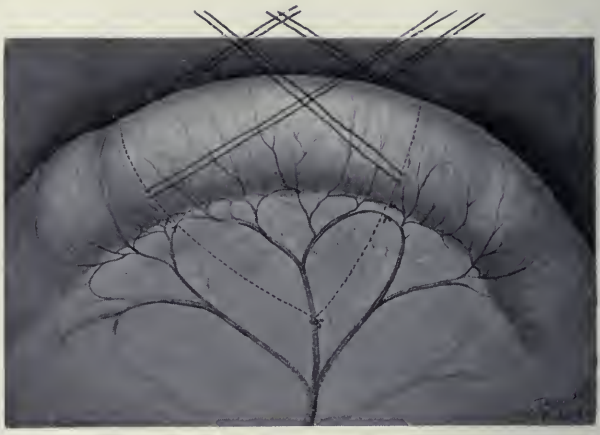


Fig. A.

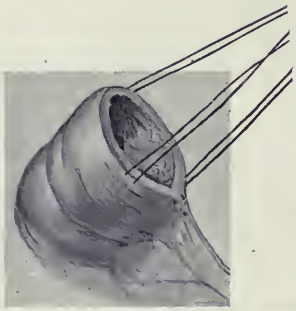


Fig. B.

Fig. C.

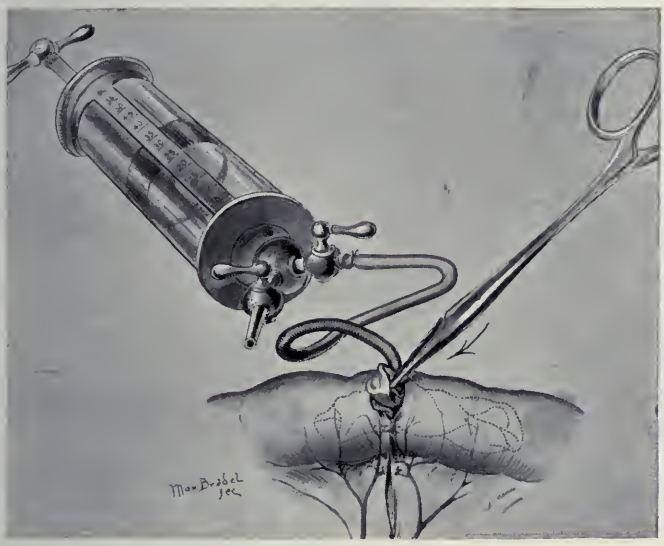


Fig. D.

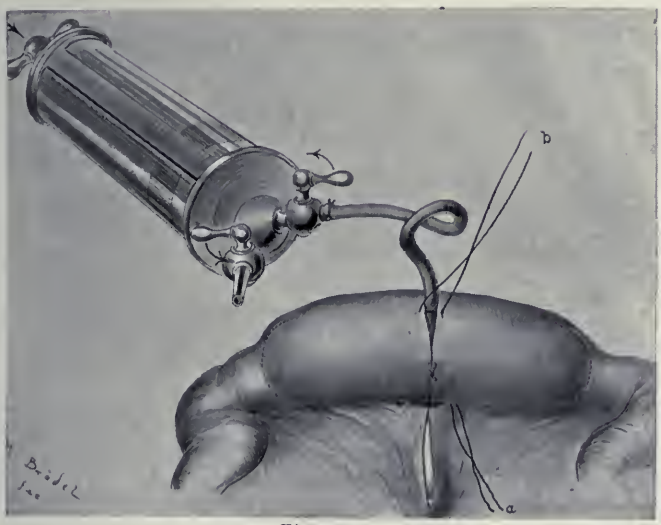


Fig. E.

orifices, through which thin elastic bands pass, that serve to join the pieces together. These elastic bands exercise a moderate pressure, intended to produce atrophy of the tissue placed between the two pieces, while not causing gangrene of the intestine. These bands are tied together with a firm knot, while the ends, to avoid loosening of the knot before cicatrisation takes place, are bound together with a silk thread. The cups are inserted as in the Murphy button. (See *Figs.* 32 and 33.)

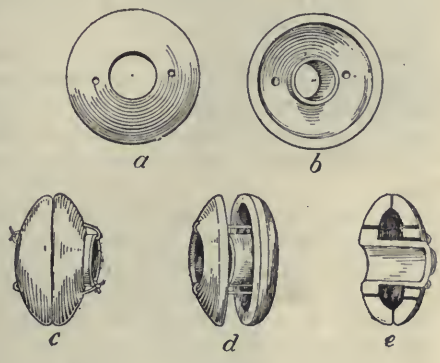


Fig. 32.—Decalcified ivory discs: *a* *b* *c*; *d*, Stretched apart to show the elastic; *e*, In section.

Halsted[3] describes a new method of uniting divided intestine over a dilated indiarubber cylinder. The method consists in roughly approximating the cut ends of the intestine, by means of sutures inserted before the gut is divided *(Plate VI, Figs. A* and *B)*. A small rubber air balloon *(Plate VI, Fig. C)* is then introduced into the lumen of the intestine *(Plate VII, Fig. D)*. The balloon is inflated *(Plate VII, Fig. E)*, the mattress sutures are introduced *(Plate VIII, Figs. F* and *G)*, and the bag is emptied and withdrawn *(Plate VIII, Fig. H)* before the sutures are tied. *Plate VIII, Fig. J*, shows the circular suture completed and the mesentery being sewn in such a way that its circulation is not interfered with.

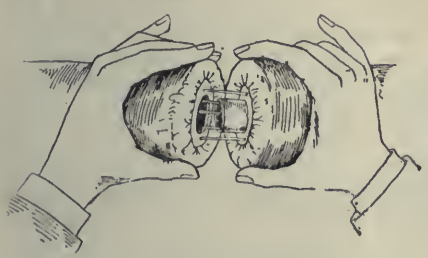


Fig. 33.—Disc ready to be closed.

He claims the following advantages for this method :—

(1,) The vermicular action of the bowel is arrested over the bag, and the stitches can consequently be placed at regular and proper intervals.

(2,) The distended bag unrolls and spreads out to a fine edge the everted raw edge of the intestine, and enables the operator to

place the stitches with great precision at the desired distance from this edge.

(3,) If distended intestine is to be sutured to collapsed intestine, or intestine of larger to intestine of smaller lumen, the smaller may easily be expanded to fit the larger piece. This is perhaps the most important function of the cylinder.

(4,) The cylinder takes the place of at least two assistants.

(5,) It prevents the escape of intestinal contents and hence dispenses with the injurious clamps or the fingers of assistants.

(6,) The entire operation, exclusive of suture of the abdominal wall, can be performed on dogs in five or six minutes, and probably in less time.

(7,) Very little handling of the intestine itself, by the operator, is necessary. The tube from bag to syringe is used as a handle to rotate and elevate the parts to be united.

(8,) The operation could readily be performed without a single assistant. It is remarkable that a similar idea had presented itself independently to Dr. Wackerhagen, who publishes his paper in the "New York Medical Journal" for January 29th, 1898.

A. E. Barker[4] describes both a new suture and a new appliance for uniting divided intestine, etc. It is a little surgical "sewing machine." Barker has been trying it for some months, and claims the following advantages for it. It saves much time; the needles can be held with much more accuracy than with the fingers; the needle only requires threading once before the operation begins; the ordinary interrupted suture can be made with it, and also a new suture, identical with that of many sewing machines, and requiring no knot until the final stitch. The machine carries silk, and any size of needle can be used. It requires some slight practice to render its use easy and rapid; unless care be taken we are apt to draw the threads too tightly.

REFERENCES.—[1] "Deuts. Zeitschrift f. Chir.," Band xlv, Heft 3 and 4, quoted in "Therap. Gaz.," Dec. 15, 1897; [2] "Lancet," Aug. 28, 1897; [3] "Johns Hopkins Hosp. Bull.," Feb., 1898, and "Philadelphia Med. Journ.," Jan. 8, 1898; [4] "Brit. Med. Journ.," July 16, 1898.

IRIS (Disorders of). *William Oliver Moore, M.D., New York.*

De Wecker[1] employs a very small marginal iridectomy as a supplement to the tatooing of a central corneal nebula. The iridectomy must be confined to the sphincter iridis; the iris forceps must be very fine; the effects of the sphincterectomy should be to render the pupil somewhat oval in shape.

REFERENCE.—[1] "Ann. d'oculistique," Dec., 1897.

Fig. F.

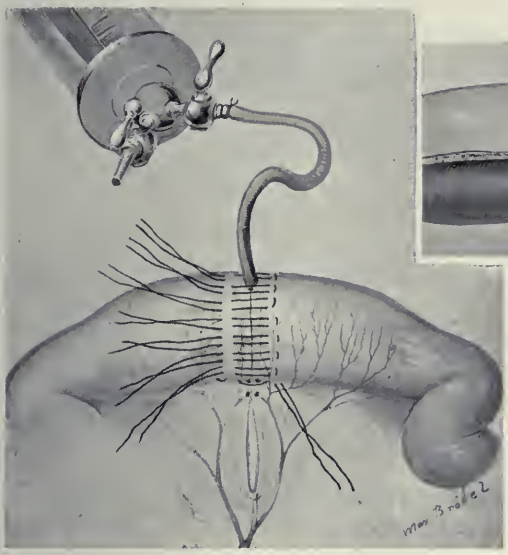


Fig. G.

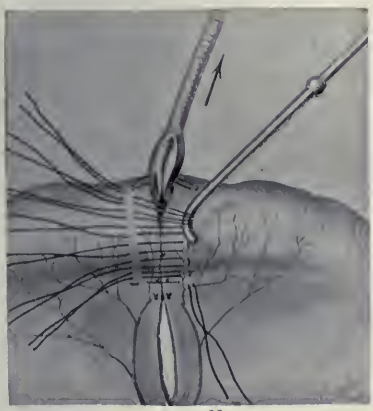


Fig. H.

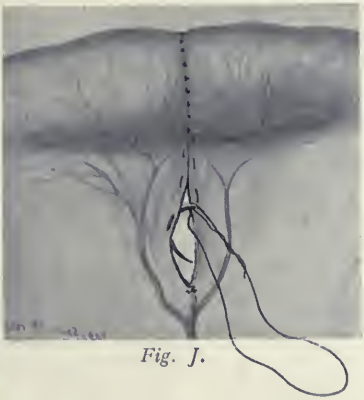


Fig. J.

JOINTS (Ankylosis of). *Priestley Leech, M.D., F.R.C.S.*

Karl Roser[1] excised the temporo-maxillary joint for ankylosis and introduced a flat piece of gold between the resected ends to prevent the formation of adhesions.

He thinks this is superior to Helferich's plan of interposing a piece of muscle between the two ends of the bone, and the temporary interposition of metal or vulcanite plates might be tried in the excision of other joints.

REFERENCE.—[1] "Centralb. f. Chir.," p. 122, 1898.

KIDNEY (Surgery of). *E. Hurry Fenwick, F.R.C.S.*

New Incision for Nephrectomy.—Abbe[1] has recently reported to the New York Surgical Society a case of hydro-nephrosis, in which the kidney was removed by an unusual method. An incision was made from a point 1 inch inside the anterior superior iliac spine, upward and backward for 4½ inches in a line parallel with the fibres of the external oblique muscle. After separation of the fibres of the abdominal muscles, as is done in McBurney's method of attacking the appendix, the peritoneum is freely exposed, and can be readily stripped from the front of the kidney. By using good retractors, the surgeon can now inspect the pedicle and separate the ureter, which can be followed to the brim of the pelvis. This method, it is held, allows nephrectomy to be performed in the most advantageous position for both patient and operator. It gives free access to the kidney and ureter, and is almost a bloodless method, as no muscles are cut across. As each abdominal muscle is divided in the direction taken by its fibres, the deep portions of the wound readily fall together, and there is much less tendency to the development of hernia.

Mr. Mayo Robson[2] draws attention to the same subject without, however, knowing that Abbe had already utilised this method. The idea was suggested to Mr. Mayo Robson's mind by McBurney's method of separating the abdominal muscles rather than of cutting through them in operating on the appendix.

Fig. 34.—Diagram of incision, showing splitting and retraction of fibres of the external oblique muscle, and also of internal oblique and transversalis.

Mr. Mayo Robson describes his method as follows: The incision (*Fig.* 34), beginning to the inner side of the anterior superior spine of the ilium, is carried backwards obliquely towards the tip of the last rib. The fibres of the external oblique

and its aponeurosis are then split and retracted, exposing the internal oblique muscle, the muscular fasciculi of which are split in a line between the ninth costal cartilage and the posterior superior spine of the ilium, in which position they are longer than in front of or behind that line. When the fingers are pushed through the internal oblique to split it, the fibres of the transversalis are pierced, and can be retracted along with the oblique muscle. A diamond-shaped space is thus formed, at the bottom of which is seen the transversalis fascia, which is then incised, exposing the peri-renal fat, and on pushing the fingers through this the kidney is easily reached, in whatever position it may lie. If needful, the whole hand may be introduced into the peri-renal space, and the kidney can be grasped and freely manipulated, the retractors for the moment being withdrawn. If the vessels are moderately long, and in all cases of moveable kidney, the organ may be brought through the wound and explored by incision or by needling, or it may be examined by the selenium screen and the Röntgen rays. Should a calculus be found it can be extracted, and the wound sutured before the organ is returned.

After all necessary manipulations on the kidney have been effected, the kidney, if not removed, is replaced, or if not disturbed from its bed is left *in situ*. The cavity is then sponged out, and on withdrawing the retractors the muscles at once fall together, and may, if thought desirable, be sutured with two or three interrupted catgut sutures, the skin incision being brought together by interrupted silkworm gut sutures. As a rule, not a single ligature is required, as there is no bleeding.

The advantages of this method of exploring the kidney are obvious. (1,) There is no division of muscle, and therefore no weakening of the abdominal wall, immediate or remote; (2,) No vessels are divided, thus not only saving time, but rendering healing *per primam* more likely; (3,) No nerves are severed, and therefore paralysis of the rectus and other muscles is avoided; (4,) The operation is done with the patient lying on the back, to the great convenience of the anæsthetist, the operator and his assistants, and to the manifest advantage of the patient, who is saved much unnecessary disturbance; (5,) The great saving of time, as well as the diminution of hæmorrhage, means lessening of shock, thus rendering operation feasible when it otherwise might be questionable; (6,) It is an important fact that diagnosis in kidney cases, especially in renal calculus, is by no means perfect, and if it can be proved that an exploration of the kidney can be done quickly with little or no

danger and without any subsequent weakness being left, the physician will be less loth to permit, and the surgeon to perform, an exploratory operation after all other means have been fruitlessly tried; (7,) Lastly, after such an operation convalescence is materially shortened, as the patient may be safely allowed to be up at the end of the second week, or even earlier, since there is no fear of the wound giving way.

Renal Hæmaturia without apparent Cause.—Dieulafoy[3] has collected some instances of hæmaturia, of which the explanation is extremely obscure. In some cases there is abundant and repeated hæmaturia without evidence of tubercle, renal calculus, or any ordinary cause. Whatever be the nature of the cases, whether hæmophilic or congestive in character, the fact remains that they are of great importance, and extremely obscure of diagnosis.

Surgical Intervention in Tuberculosis of the Kidneys.—Tuffier[4] reports fifteen operations performed on the kidneys for tuberculosis, about a tenth of his operations on these organs (one hundred and fifty-two in all), in the course of the last eight years. He only operates when all medical treatment has been found ineffective, and considers the three principal indications to be: Intense hæmaturia, pain, and evidence of infection and intoxication. Benign hæmaturia does not require intervention, but only severe cases, with sufficient loss of blood to weaken the patient to a dangerous degree.

Nephralgia due to Malarial Poisoning.—Mr. F. W. Kirkham[5] has a short but suggestive contribution to the "Medical Times" on this subject, and Mr. Morris alludes to it thus in his "Hunterian Lectures."

Mr. Kirkham states, "During the past two years I have had four patients under my care who, after recovering, or during their recovery, from malarial fevers have been seized with daily recurring attacks of pain in the region of the kidney, presenting symptoms very like those due to the passage of a renal calculus."

Tiffany,[6] of Maryland, speaks of having seen a number of cases of malarial hæmaturia, in which it would seem a history of intermittent or remittent fever was often wanting, but the patients had a sallow complexion, which might, however, have been wrongly attributed to the affection for which surgical relief was sought. His remarks lead one to suppose, though he does not actually say so, that he has proved the malarial origin of the hæmaturia and pigmented urine in some of these cases by finding the plasmodium malariæ in the blood. If renal pain be associated with the hæmaturia, and the microbe of malaria be not looked for or not found, the diagnosis of renal calculus would be almost sure to be made.

Operations upon the Kidney.—The literature of the surgery of the

kidney has been greatly enriched this year by Mr. Henry Morris, who detailed his entire experience (two hundred and sixty-seven cases) in his "Hunterian Lectures." The lectures should be carefully read by those aiming at a thorough knowledge of this branch of surgery. Space, however, only permits of several of the more salient features being quoted here :—

Nephropexy.—Mr. Morris prefers to attach the kidney itself to the cut edges of the transversalis fascia and the aponeurosis of the transversalis muscle by means of three sutures, dipped deeply into the posterior surface of the organ, and running for from three-quarters of an inch to an inch in its substance. He now always employs silk. The accompanying illustration (*Fig.* 35) will explain his method of inserting the sutures. He says : "The results obtained have in most of the cases been perfectly satisfactory, and I see, from time to time, patients upon whom I operated nine or ten years ago with their kidneys as firmly fixed as can be desired, and who have been quite free from their former symptoms ever since the operation. Moreover, I have had the opportunity of witnessing in the living bodies of some three or four of my patients the sound and complete hold-fast which this method affords. It has a few times happened to me from six to twelve months, or longer, after fixing a hydronephrotic as well as after fixing the healthy kidney, to have to do a second operation for quite different reasons upon the same organ; and I have then seen my sutures imbedded in a mass of tough fibrous tissue, and have had to pull or cut them out from the renal parenchyma before I could detach the kidney. Here they had for months harmlessly remained without showing the least tendency to become the nuclei of calculi, as some surgeons anticipated would be the case."

Fig. 35.—Mr Morris's method of fixing the kidney.

Partial Excisions.—An important advance in the conservatism of the kidney is the excision of the diseased portions of that organ in place of nephrectomy. One of the best cases adduced is that of a female, aged twenty-eight, whose left kidney the lecturer was exploring for stone on January 2nd, 1895. Three areas of grouped

miliary tubercles were found at different points of the kidney. Thev were removed by excising three wedges of the renal parenchyma. At one of these wounds, layer after layer was shaved off till healthy tissue was reached. The cut surfaces were sutured with catgut, three sutures in each wound. The kidney was then replaced, and the parietal wound closed. After the operation, blood was passed with the urine for three days. The patient made a rapid recovery, and left the home without a sinus on January 16, 1895. In March, 1897, two years and two months afterwards, her husband wrote stating that she had steadily improved in health since the operation, and was then well.

Operations on the Ureter.—Operations upon the ureter are an advance of the last few years, but not many have been recorded up to the present time. They are of very considerable importance because of the influence they are having, and are destined to have upon renal surgery generally.

Ureterotomy has been employed in the treatment of hydronephrosis, calculus, and calculous anuria. Ureterectomy will improve the results of operations for advanced tuberculous disease descending from the kidney, and also of those performed for calculous pyonephrosis complicated with suppurative ureteritis. Ureteral anastomosis, and other plastic operations on the ureter, will save many kidneys which would formerly have been nephrectomised on account of hydronephrosis, fistulæ, and surgical injuries of the ureter.

Mr. Morris records the following interesting case of removal of a stricture at the junction of the ureter and renal pelvis: A female patient, aged twenty-nine, who for four or five months has had intermittent periods of aching or discomfort in the right kidney, which was very movable, associated with very frequent micturition, sometimes almost amounting to incontinence. At these times the urine became very thick and offensive; and at other times there was pus in small, but distinct, quantity in the urine. There was marked tenderness on bimanual examination, so that renal calculus was suspected.

Twelve months before her symptoms began she was thrown from a horse on to a heap of stones, and a good deal shaken. Possibly this had some influence in causing the condition found at the operation. Through a lumbar incision the upper end of the kidney was seen to be firmly bound down by tough fibrous adhesions, almost as hard as cartilage. In the contraction of these adhesions the kidney had become slewed round, so that its upper end had been drawn lower than the lower pole of the organ, and the front surface came to look backwards. At least, this was the explanation of the abnormal

position which suggested itself during the operation. The pelvis of the kidney was distended to the size of a tennis ball, and the ureter, which joined the infundibulum at its lower point as normally, was so constricted as barely to admit the smallest urethral catheter (*Fig.* 36). The kidney was incised along the convex border, and thoroughly explored for stone. None was present, but the calyces were found slightly sacculated. The constricted orifice of the ureter was longitudinally divided upon the catheter, which was passed from a small opening in the infundibulum through the stricture to the bladder, and the ends of the incision were drawn together, by the Heineke-Mikulicz method, by means of two fine silk sutures, passed after the manner of Lembert (see *Fig.* 37). The wound of the renal parenchyma was sutured with silk. Nephropexy was then performed. The wound healed entirely by first intention, and there has been no return since of the symptoms which led to the operation.

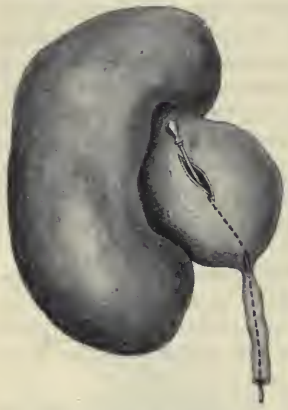


Fig. 36.—Pelvis of the kidney and upper end of ureter, showing the stricture at their junction. A probe has been passed along the ureter through an opening in the infundibulum (Author's case). (Diagrammatic).

Nephrolithotomy. — In discussing the subject of stone in the kidney the following pertinent remarks were made by the lecturer: Calculous pyonephrosis is the result of long standing irritation and progressive destruction of the kidney, and there is no reason why it should ever occur if physicians would recommend and surgeons would practise early operation for stone in the kidney. Mr. Morris's present mortality for stone in the kidney is 17 per cent., and if delay had not occurred in his cases it would have been 2·9 per cent.

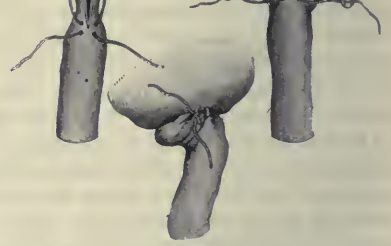


Fig. 37.—Manner of suturing after division of the stricture. The side view shows a great exaggeration of the pucker produced by tightening the sutures. (Diagrammatic).

This statement receives support from the lecturer's own statistics, as in table below :—

	Cases.	*Recoveries.*	*Deaths.*	*Percentage*
Nephrolithotomy	34	33	1	2·9
Nephrotomy for calculous conditions	43	23 (?)	10	23·25
Nephrectomy for calculous conditions	17	12	5	29·4
	94	68 (?)	16	17.0

Difficulties attending the Diagnosis of Stone in the Kidney.—Several other renal and ureteral affections give rise to the same symptoms as stone. The lecturer mentions forty-four cases he has explored for symptoms like stone, but in which no stone was found. In a few instances a calculus was possibly in the ureter at the time of the exploration, but in the greater number of the forty-four cases some other morbid state of the kidney was found and removed. Thus he discovered and excised foci of tuberculous disease; he fixed misplaced or freely-shifting kidneys, opened and scraped away half a dozen small abscesses or suppurating cysts, excised solid renal or perirenal tumours, or a tense cyst, discovered and gave exit to blood extravasated beneath the fibrous capsule or pent up within the cavity of the kidney, liberated a kidney hampered by tough adhesions (which in one of the cases were as dense and hard as cartilage), or detected and divided a ureteral stricture or obstructing valve.

The lecturer explored several cases in which the diagnosis was very doubtful, but the severity of the sufferings were so intense that the patients willingly submitted to an operation. The exploration proved the absence of a calculus, but revealed a degree of mobility behind the peritoneum, in what he designates as a cinder-sifting manner, altogether out of proportion to any mobility detectable by clinical examination; in some of them no mobility whatever could be made out by bimanual abdominal palpation. In these cases complete relief has been obtained by nephropexy. In other cases, instead of calculus, the kidney was found more or less displaced, and though little, if at all, moveable, yet was greatly engorged with venous blood, owing to distortion of the veins at the hilum. In other cases, again, the kidney was swollen and congested with venous blood, obstructed by the pressure of tough and condensed perinephric cellular tissue.

Another important class of cases in which the symptoms simulate renal calculus is ureteritis, a disease to which more attention seems to have been given in France and Germany than elsewhere.

Conditions outside the Kidney which give rise to symptoms suggestive of Stone in the Kidney.—Mr. Morris has known instances of

each of the following diseases being the subject of mistake: (*a*,) Gastric ulcer; (*b*,) Malignant and tuberculous growths in the intestines; (*c*,) Intestinal adhesions, whether involving the renal pedicle or not; (*d*,) Aortic or cœliac aneurysm stretching the ureter or renal vessels; (*e*,) Spinal disease; (*f*,) Vesical calculus; (*g*,) Abscess and calculus in the prostate; (*h*,) Growths in the bladder; (*i*,) Ovaritis; (*j*,) Tuberculous disease of the Fallopian tube; (*k*,) A gall stone in the cystic duct.

Renal pain referred to the opposite Kidney.—It was taught some years ago that a stone in one kidney may cause pain to be felt *only* in the opposite kidney, that if the abdominal route were taken we should be able to avoid operating upon the wrong kidney by finding out, by direct palpation, in which organ the stone is really situated.

Mr. Morris does not consider this teaching has been sufficiently discounted by the profession. He opposes it strongly.

Mr. Hurry Fenwick expressed his views in 1892 on this important subject in the same sense ("Cardinal Symptoms of Urinary Disease," p. 222). In a clinical lecture on "Referred Renal Pain" he says: "There is a tendency to give referred renal pain undue prominence. I am certain it is less often met with than your books will lead you to believe. Do not forget that a kidney may contain large and many stones which do not cause any pain, whilst its fellow-gland—and you remember that calculus is bilateral in one-fifth of the cases—may be intensely irritated by a small calculus, unfeelable by mere digital examination."

The conclusions which Mr. Morris has arrived at are the following:—

(1,) That the aim of the surgical treatment of renal calculus should be to extend the application of nephrolithotomy, and thereby restrict the necessity of nephrotomy and nephrectomy for this disease.

(2,) That more frequently than not, the failure to find a stone is not in reality a failure of treatment, because there are so many curable morbid conditions which mimic renal calculus, and which are discoverable only by exploration.

(3,) That the theory that a stone in one kidney, whether that kidney is itself painful or not, reflects or transmits pain to the opposite kidney is quite unproven; that it is a dangerous theory, calculated to lead to very erroneous practice; and that the surgical principle with regard to exploratory operations should be that with pain, paroxysmal or continuous, on one side only, the kidney on the painful side should be explored.

(4,) That nephrectomy for calculous conditions is not often called for, and should be done only in exceptional cases. Nephrotomy for

calculous pyonephrosis is the proper operation, at any rate, as a primary operation, because of the frequency of double calculous disease. Experience has shown that kidneys from which stones weighing 830 gr. and 1,300 gr. have been removed are functionally sufficient to maintain life during the blocking of the ureter or suspended action of the kidney of the opposite side.

(5,) That nephrectomy, whilst the opposite organ is occupied by calculus, is fraught with the greatest danger to life; whereas nephrectomy, after the opposite kidney has been freed of stone, will probably be followed by recovery from the operation, and possibly by very good health for many years afterwards.

(6,) That when renal calculus causes reflected or transferred vesical or ovarian pain, the removal of the calculus will be followed by complete cure of the bladder or ovarian symptoms.

(7,) That in some cases renal calculous conditions are attended by very remarkable nervous symptoms, sometimes with, sometimes without, high temperature, and that information as to the cause of these symptoms is needed.

(8,) That unsuspected renal calculi are a source of very real danger to their possessors; and when, whether by accident or by the systematic examination of the urine, we have cause to suspect the presence of a calculus, we should recommend its immediate removal, regardless of the fact that it is not causing renal or transferred pain.

(9,) That quiescent calculus is as dangerous to the individual as unsuspected calculus, and ought to be removed by operation.

(10,) That the hitherto accepted teaching, that a renal calculus, if causing only mild symptoms, or attacks of severe colic of only recent occurrence, should be treated on the expectant plan, ought to be discarded as unsound in theory and dangerous in practice.

(11,) That the same principle should be applied to renal calculus which has long been the rule in regard to vesical calculus—namely, when suspected it should be searched for, when known to exist removed, without waiting in the hope that it may become encysted or spontaneously expelled.

(12,) That the very low mortality of nephrolithotomy puts this operation upon the same footing for renal calculus as lithotrity in the most experienced hands for vesical calculus.

REFERENCES.—[1] "Annals of Surg.," June, 1897; [2] "Lancet," May 14, 1898; [3] "Journ. de méd.," July 10, 1897; [4] "Therap. Gaz.," July 19, 1897; [5] "Med. Times"; [6] "Trans-American Med. Assoc.," vol. xii, p. 113, 1894.

LABOUR. *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Antepartum Hæmorrhage.—A vigorous plea for the adoption of vaginal plugging in the treatment of accidental hæmorrhage has been put forth by Tweedy.[1] He does not recommend it in all cases indiscriminately, but emphasises the distinction between those hæmorrhages associated with an atonic uterus and those not so associated.

He observes: "If labour pains are strong and the os dilated the prognosis is decidedly good, and to rupture the membranes or turn and bring down a foot will as a rule suffice. Forceps may at times be indicated, and even *accouchement forcé* can under the circumstances be often successfully accomplished. But in the presence of an atonic or inert uterus with a long unretracted cervix and a partially-opened os, how can we hope to improve matters by any of the above proceedings?

"Rupture of the membranes, with or without podalic version, does not excite the uterus to contract for many hours; the hæmorrhage, therefore, is most likely to continue, and the operator, in spite of his better judgment, is not infrequently compelled to employ forcible dilatation of the cervix and rapid delivery.

"In doing this, the cervix is liable to be torn, and large branches of the uterine artery to be laid open, but even should the latter accident be avoided, the performance of forced delivery produces a condition of shock which proves but too frequently greater than the patient can bear. It is no exaggeration to say that the performance of Porro's operation even would, under the circumstances, be a less hazardous proceeding. In the vaginal plug, however, we have an alternative to the above line of treatment capable, I believe, of obviating the worst dangers arising from accidental hæmorrhage."

We cannot endorse the whole of this statement, as we think that the view that forcible dilatation of the cervix and rapid delivery produce so much shock as to make the procedure more hazardous than a Porro's operation, is very much open to question. Tweedy regards the vaginal plug as acting as a tourniquet to the uterine arteries; but he maintains that to produce this action it must be of the proper material, and properly applied. He had heard of a boiled sponge or a silk pocket handkerchief, and had seen tenax, dry cotton wool, dry iodoform gauze, and a torn shirt used for the purposes of a tampon. Such things are useless.

He describes the procedure to be adopted as follows: "To accomplish this little operation in a satisfactory manner many pieces of sterilised cotton wool are required, each the size of a small closed fist, and should be placed in a weak antiseptic solution. The patient is

then brought out to the edge of the bed, put lying on her left side, and when the vulva and vagina have been asepticised, and the bladder emptied, the pieces of cotton wool are taken one by one, squeezed of their superfluous fluid, compressed into a comparatively small compass, and inserted without the aid of a speculum in such a manner that the entire cervix is surrounded by pledgets before the os is covered. Each piece is packed as tightly as possible, and then the vagina is filled to its utmost capacity down to the urethra; a diaper placed between the thighs, and a tight abdominal binder completes the operation.

Post-partum Hæmorrhage.—In the treatment of this grave condition any measure that promises a successful issue must be carefully considered. We may therefore refer to the following plan suggested by Enrico Sava[2], and carried out by him in a case which he has recorded.

The method is as follows: After all the clots have been expressed from the cavity of the uterus, the fundus is drawn over to the front, and made to rest upon the symphysis pubis in such a fashion that its posterior surface looks directly upwards. Then a bandage is passed tightly round the abdomen immediately above this level, so as to keep the uterus in this position of forced anteversion. The idea was suggested to Sava by what naturally occurs to the uterus in abortion. He thinks the method is to be preferred to packing the uterus and vagina, etc. It is simple and can be carried out by the midwife or nurse. It stimulates the external, not the internal, surface of the uterus. The danger of concealed internal hæmorrhage is avoided, and the risk of puerperal infection is greatly lessened. Further it produces a kind of auto-transfusion, a large quantity of blood being sent to the nervous centres.

The criticism which we have to offer on this procedure is that in many cases it would be by no means an easy matter to get the uterus so far ante-verted over the fundus that a bandage could be securely applied so as to keep it there. One would imagine also that the plan was suggested by the practice of bimanual compression of the uterus, rather than by "what naturally occurs to the uterus in abortion." The procedure is however so simple that it appears to be well worth a trial.

For the recovery of patients who have suffered from a dangerous loss of blood, the injection of **Salt Solution** is a most important measure. According to Amillet,[3] when the quantity lost is very great, intra-venous injection answers best; a 1 per cent. salt solution should be used, and at least three or four pints should be introduced. In less serious cases 208 grammes, or about 7 fluid oz., may be injected under

the skin ; more than one dose may be required. It would appear, however, that even in very grave cases the subcutaneous injection of small quantities of salt solution may be effectual.

Thus Gimbert[4], of Cannes, reported a case of which perhaps the most striking feature was the success that attended the injection of quite a small quantity of salt solution, viz., 80 cubic centimètres, or just under 3 oz.

REFERENCES.—[1]"Brit. Med. Journ.," June 4, 1898 ; [2]"Arch. di Ostet.," etc., May 1898 ; [3]"L'Obstét.," July 15, 1897 ; [4]"Gaz. hebd.," Feb. 27, 1898.

Arthur E. Giles, M.D., B.Sc., F.R.C.S.

Prolapse of the Funis.—An excellent summary of the causes and treatment of this complication is given by Flynn.[1]

Causes.—Contracted pelvis, myoma of the cervix uteri, hydramnios, footling presentations, transverse presentations, multiple births, prolapse of an arm with the head, breech presentations, hydrocephalus, anencephalus, pendulous abdomen, ovarian or other tumours in the pelvis, premature fœtuses, dead fœtuses, very long funis, sudden rupture of membranes, the head being movable at the brim, velamentous insertion of the funis near the os uteri and placenta prævia.

TREATMENT.—(*a*,) *Presentation of the Funis.*—Two plans are available, postural treatment and external version. For the former, the genu-pectoral position is advised. If the funis goes back, press the head down into the pelvis and turn the patient again on her back. If this should not answer, the membranes may be ruptured and the cord replaced by hand ; or external treatment may be employed. This is done as follows : In first and fourth vertex positions, grasp the head of the fœtus with one hand, and with the other grasp the breech, and try and bring the head up along the right side of the uterus and the breech down the left side, so as to convert it into a breech. Turn it again into a vertex presentation by bringing the breech up the right side of the uterus and the head down the left side.

In the second and third positions the child is turned in an opposite direction to that in which the first and fourth were turned.

The reason why external version is recommended to be performed in the way described is to bring the umbilicus of the child further away from the os, thereby drawing the funis up into the uterus. If version were performed in the opposite direction it would bring the umbilicus over the cervix, and thereby cause more of the funis to present.

(*b*,) *Prolapse of the Funis in cases where the External Os is only somewhat Dilated* (*admitting one or two fingers*) *with a Vertex Presen-*

tation, and the Membranes only shortly ruptured.—Turn the child into breech by bi-polar version, and when the os is fully dilated pull down a leg and extract quickly by traction on the leg, or turn the child by bi-polar version into a breech, and wait until the os is nearly fully dilated, then turn the child by internal version into a vertex presentation, and replace the funis with the patient in the genu-pectoral position.

External Os nearly fully Dilated with a Vertex Presentation.—Replace the funis.

Os fully Dilated and Retracted off the Head of the Child.—Deliver quickly with forceps if the child is alive, if dead do not interfere.

The danger of delivery with forceps is that the funis may be compressed between the head and blade, and so kill the child if delivery be slow.

Presentation or Prolapse of the Funis Occurring with a Vertex Presentation Complicated with Placenta Prævia.—Convert the head into a breech by external version in presentation, and in prolapse by bi-polar or internal version followed by drawing a leg down through the cervix into the vagina.

Prolapse of the Funis Complicated by a Face, Brow, Flattened Pelvis, or generally Contracted Pelvis.—Try and convert the face or brow into a vertex, and if successful then try and replace the funis; if unsuccessful in converting a face or brow into a vertex, perform version and convert it into a breech.

In flattened pelvis perform version so as to have a breech presenting.

In a generally contracted pelvis, try and replace the funis and leave the head presenting.

Prolapse of the Funis Complicated with Prolapse of an Arm with the Head.—Try and replace the prolapsed arm, and if successful try and replace the funis, but if unsuccessful, perform version.

To Replace a Prolapsed Funis.—After disinfection of hands, vulva and vagina, place the patient in the genu-pectoral position, and introduce the hand into the vagina. Grasp the whole prolapsed funis in the palm of the hand, and pass the hand into the uterus and try to get the funis above the shoulders of the child. When this is accomplished draw the hand out of the uterus in another direction to that in which you introduced it, so as to try and prevent the funis from following it. The patient is to be kept in the genu-pectoral position for about five minutes, and then made to lie on her back. Be careful when changing the position of the patient to try and keep the head pressed down over the brim by the hand from without.

As an alternative posture to the genu-pectoral, Abrahams[2] recommends the Trendelenburg position, as first suggested by Brothers, who reported two cases so treated. Abrahams had adopted it in six cases. Its advantages are that it is less repulsive to the patient, and can be endured much longer. Version can be performed with great ease in this position, if necessary; and after reposition of the cord, the patient can be kept in this position, though it may be slightly modified for her greater comfort.

Contracted Pelvis.—When the pelvis is only relatively small, or even when normal, if there be a tendency to very large children, Prochownik's principle may be adopted. This consists in dieting the patient for the last four or five months of the pregnancy, the food supplied being poor in carbohydrates. Pradon[3] tried this plan in the case of a patient with distinctly narrow pelvis who had twice been delivered by the aid of the cranioclast of very big children (12 lbs. and 11 lbs.). In her third confinement a somewhat thin fœtus, weighing 8 lbs. 12 ozs., was delivered by forceps. (See also Symphysiotomy and Cæsarean Section under art. "Symphysiotomy."

Embryotomy.—To obviate the risk of injury to the maternal passages during the performance of this operation, Kosminski[4] employs specula, which protect the walls of the cervix and vagina from contact with hands and instruments. He has devised large blades, shaped something like spoons, which form a speculum, and make it almost impossible to infect or injure the cervix or vagina. Having introduced his specula, he grasps the scalp with tenaculum forceps, incises it, and applies the perforator or trephine directly by means of sight. He is very careful to remove the brain completely, and to remove all pieces of bone without wounding the mother's tissues. He urges that it is much safer to perform craniotomy guided by vision than in the usual way. After the head has been emptied, the specula are removed and delivery accomplished by the cranioclast. He describes five cases in which the operation was easily and successfully performed.

He has also employed this method in cases of transverse positions in which decapitation and embryotomy were required. He has found great advantage in being able to see the tissues operated upon, and has been able to protect the mother especially from injury by the fœtal ribs. He reports four cases of successful embryotomy by this method.

When labour is delayed by excessive size of the shoulders, Von Herff[5] maintains that cleidotomy presents great advantages. He adopted it in two cases. The first was an anencephalic fœtus. After the birth of the head, examination revealed the fact that the shoulders

were excessively broad, and were transversely above the pelvic brim. The fœtal thorax was also excessive in size. An effort was made to bring down the posterior shoulder, but this failed. A perforator was then introduced along the fœtal back, some of the upper ribs were separated, and one of the clavicles broken; the shoulder at once descended, and the fœtus was easily delivered.

In the second case, the head was delivered by forceps, but all efforts at traction upon the shoulders failed to cause the child to emerge. The shoulders were impacted above the pelvic brim in the right oblique diameter. It was impossible to dislodge the child or to bring down an arm. Accordingly the clavicle of the posterior shoulder was broken with a perforator, and the shoulder descended. The trunk was then brought deeper by a blunt hook, the arms extracted, and the child delivered. It had perished before extraction, from birth-pressure.

REFERENCES.—[1] "Med. Press and Circ.," July 6, 1898; [2] "Med. Record," July 2, 1898; [3] "Monats. f. Geb. u. Gyn.," Jan., 1898; [4] "Cent. f. Gyn.," Nov. 29, 1897; [5] "Arch. f. Gyn.," vol. l.ii, part 3, 1897.

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Walcher's Position.—The *Walchersche Hängelage* was first described by Walcher in 1889, in a short article in the "Centralblatt für Gynäkologie." He stated that by placing the parturient patient in the lithotomy posture, and then allowing the legs to hang freely down so that the feet do not touch the floor, the true conjugate is increased about 1 cm. That this statement is correct has now been proved by numerous observers abroad, and the posture is now in use as a matter of routine in several German hospitals. It is employed in all high forceps operations, in extractions after turning, and after perforation of the head. I have found the posture extremely useful in several cases.

In posing the patient, all that is necessary is to see that the buttocks are quite at the edge of the bed or table used, and if the bed is too low, pillows must be placed under the buttocks so as to raise the body of the patient until the feet hang clear of the floor. There is a tendency to pull the patient off the bed; but she may be held by the anæsthetist, or bands may be passed under her arms and fastened to the bed or table legs so as to hold her in position.

An advantage is that no assistant is needed to support the legs. In this posture the axis of the pelvic brim presents downwards at an angle of about 40°; therefore, in order to exert traction in the proper direction with forceps, the operator must sit on a low stool, or on a cushion placed on the floor.

It is useful: *A.*—In high forceps cases, and after perforation, the position saves: (1,) The strength of the operator; (2,) Pressure on the head; (3,) Pressure on the symphysis; (4,) Pressure on perineum by forceps.

B.—In cases of difficulty at the brim not needing forceps, and in breech cases, the position saves: (1,) Exertion to the uterus and abdominal muscles; (2,) Pressure on the head; (3,) Pressure on the pubic symphysis.

C.—In all cases, with or without forceps, where the perineum is in danger, extension of the legs at the hips is of advantage in relaxing the integument and subjacent structures at the vulvar orifice.

REFERENCES. — Walcher, "Centralb. f. Gynäk.," 1889, s. 892; "Arch. f. Gyn.," Bd. xl, 1891, S. 362; "S. Verh. d. deutsch. Gesellschft. f. Gynäk.," iv, Leipzig, 1892; Gustav Klein, "Zeitschr. f. Geb. u. Gyn.," Bd. xxi, S. 74; Fehling, "Arch. f. Gyn.," Bd. xliv, 1893, S. 542; "S. Verh. d. d. Ges. f. Gyn.," v. Leipzig, 1893; "München. med. Wochenschr.," 1894, No. 44; Wehle, "Arch. f. Gyn.," Bd. xlv, 1894, S. 323; Kuster, "Centrbl. f. Gyn.," 1895, S. 257; Kalt, "Korr. Bl. f. Schweizer Aerzt.," 1894, No. 20; "Centrbl. f. Gyn.," 1896, S. 267; Fothergill, "Edin. Med. Journ.," July, 1895; Eiermann, "Die Praxis," 1896, No. 9; Ahlfeld, "Lehrbuch. d. Geb.," p. 280.

LABOUR (Effect of Drugs in) *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Quinine and Ergot.—Comparing the effects of these two drugs in a paper read before the Edinburgh Obstetrical Society, Mackness[1] thus summarised their relative values. The disadvantages of ergot were: Its preparations were very unreliable in potency and action; it was apt to cause vomiting, difficult to keep, and if injected hypodermically caused pain, if not abscesses; it caused "tetanic contraction of the uterine muscles, with occasional increases of violence; there was no complete relaxation between the spasms as in ordinary labour pains" (Lauder Brunton); the tetanic contraction was dangerous to the mother, and in a high degree to the child; asphyxiation was apt to occur; it was said to cause hour-glass contractions of the uterus.

The advantages of quinine were: It could be easily administered in pills, which kept for any length of time; it was thus tasteless; it hardly ever produced vomiting; its action was more certain than that of ergot in that there was no variability in its composition; it was easily soluble in the acid gastric juice, its effects were seen within twenty minutes; it did not produce tetanic contraction of the uterine muscle, but merely increased the strength of the "pains," and allowed of the natural periods of relaxation. It was specially of use in inertia pure and simple, where there was no obstruction or deviation from normal, or disproportion between passages and fœtus. In primiparæ

it gave fresh tone to the exhausted uterine muscle, and it often obviated the necessity for forceps.

Dr. Mackness was in the habit of using 4-grain pills of the sulphate. Of these two were given, and if the pains did not increase sufficiently another pill was given in an hour, and yet another an hour later. It was rarely necessary to give the third dose, 12 gr. being generally sufficient. Cinchonism was hardly ever produced. Three typical cases in which quinine was used successfully were referred to.

For the arrest of hæmorrhage ergot was useful, but was contraindicated in all cases of labour where ecbolic action was desired. For hæmorrhage during labour quinine was of more service, inasmuch as it set up regular contraction. The tetanic contraction due to ergot was no doubt serviceable in *post-partum* hæmorrhage by compressing the gaping vessels. When abortion was threatened, where there was bleeding, no pain, os uteri closed, then ergot in small doses was of great use by bringing into play the hæmostatic action of the drug. In subinvolution after delivery ergot was of service, especially if there was hæmorrhage.

Dr. Mackness's conclusions were as follows: (1,) Ergot is contraindicated in labour, but is useful in large doses in *post-partum* hæmorrhage; (2,) Ergot is useful in repeated small doses in threatened abortion and in subinvolution; (3,) For delay in labour due to exhaustion of the uterine muscle, 8 gr. of quinine followed by 4 gr. in an hour, and the latter dose repeated an hour later, if need were, should be given.

Hare[2] has come to somewhat different conclusions. His method of investigation was in the form of a "symposium"; he wrote to a number of leading obstetricians to obtain the results of their experience as to the value of quinine as an oxytocic. While some observers spoke highly of its effects on uterine inertia, the replies of others were not so favourable. From the balance of evidence Hare believes that quinine has no direct oxytocic influence, and is incapable of originating uterine contractions; but that it greatly increases the power of contraction of the uterus by supporting the nervous system and also the general strength of the patient.

One or two observers reported not only that the patients were annoyed by the ordinary symptoms of cinchonism, but that quinine distinctly increased the tendency to post-partum hæmorrhage.

When a woman's uterus becomes quiescent from inertia or otherwise, and she lies still for an hour, the pains would usually return at the end of that time if she took no drugs. If quinine had been given then the physician might readily conclude that the quinine brought the pains back again.

According to Boissard,[3] the abortive or ecbolic action of quinine sulphate, has been discussed by many writers whose investigations and experiments show that this drug should not be considered as an abortive agent; in several cases in which there was contraction of the pelvis and it was necessary to interrupt the pregnancy, this drug was given every day in large doses without producing the least symptom of labour, yet it was given in amounts that, if not toxic, were at least sufficient to cause quinine intoxication.

Schwab[4] has had a favourable experience of the value of quinine in abortion as well as in labour. In seven cases of retained placenta after abortion, he gave a gramme of quinine divided into two "cachets" at ten minutes' interval—$7\frac{7}{10}$ gr. at a dose. As a rule the placenta was expelled in four hours and a half by the stimulation of the uterine muscular fibres caused by the drug. In several instances the pains had ceased for hours. Hence the action of the quinine was positive. No bad results were observed, and no tetanic contractions occurred.

While quinine sulphate has little or no power of inducing labour pains, Schwab is positive that after uterine contractions have once begun the administration of quinine causes them to become rapid and energetic. He obtained excellent results from its use in all cases of prolonged labour due to uterine inertia. While quinine strengthens the labour pains, it does not tend to induce abortion. Unlike ergot, it causes intermittent and not tetanic contractions, and may therefore be prescribed without danger during the second stage of labour. Its action begins in about one-half hour; the drug is therefore best given in two doses of 8 grains each, within a period of ten minutes. Quinine is indicated if, after rupture of the membranes, labour is unnecessarily prolonged on account of uterine inertia, the mother is exhausted, and there is danger of the child becoming asphyxiated. While quinine has a tendency to produce post-partum hæmorrhage, this is easily controlled by massage of the uterus.

Morphine, Ether and Chloroform.—The action of these drugs is the subject of a careful analysis by Hensen,[5] who finds that morphine in doses of under $\frac{1}{3}$ of a grain exerts no influence on the force of the pains and of the abdominal muscles. Ether causes a distinct effect, as after one or two minutes the force of the pains is diminished and the interval prolonged. When ether is discontinued the previous force of the pains is restored in from five to twenty minutes. Under ether narcosis the abdominal muscles cease to aid in the process of labour. Chloroform produces similar effects on the pains, but when its administration is suspended restoration of the pains to their previous force and fre-

quency is very much slower. Its evil influence does not disappear for quite two hours. Therefore Hensen urges that ether should always be used as the anæsthetic in labour. It facilitates turning and forceps delivery as well as chloroform, whilst its effects very rapidly disappear, a most desirable result when we remember the chances of *post-partum* hæmorrhage after instrumental labour.

Archangelsky[6] believes that the external application of chloroform to the abdomen in severe and irregular labour pains is superior to chloroform-anæsthesia. He employes a mixture of 1 part of chloroform to 2 or 3 parts of olive-oil, rubs it in well on the abdomen, and then applies a warm compress. In a very short time the pain is relieved, the contractions become regular and more effective. Its advantages over chloroform-anæsthesia are: the patient remains fully conscious, the pulse and the respiration remain good, there is no nausea, no vomiting, and no uterine atony.

Kola.—Owing to a suggestion as to the usefulness of this drug in uterine inertia by Gundrum,[7] Hare[8] obtained a supply and put it in the hands of Barton Cooke Hirst, E. P. Davis, and R. C. Norris, who all reported on it, but no uniformity of results was obtained.

REFERENCES.—[1]Report in "Brit. Med. Journ.," March 19, 1898; [2]"Therap. Gaz.," July 15, 1897; [3]"Journ. des Prat.," Aug. 28, 1897; [4]"Ann. de gyn. et d'obstét.," May, 1897, and "La méd. mod.," 1897, No. 3; [5]"Arch. f. Gyn.," vol. lv., part 1, 1898; [6]"Vratch," vol. xix., p. 355; [7]"Therap Gaz.," 1897; [8] Hare, Ibid., Oct. 15, 1897.

LACHRYMAL APPARATUS (Diseases of).

William Oliver Moore, M.D., New York.

Non-Suppurative Inflammation of Lachrymal Glands is reported by Randolph[1] in a negress thirty-nine years old, with a history of rheumatism. Pain first began down both sides of the face and over the eyebrows. In a month a swelling appeared at the outer canthus of each eye, gradually increasing. A hard nodular immovable tumour, painful to pressure, extending from the nasal end to beyond the temporal end of the orbital rim, measuring 15 mm. vertically in the widest part, presented itself.

Treatment by **Mercuric Bi-Chloride** and **Potassium Iodide** with applications of hot water, changed the condition so that in six months' time only a slight enlargement of the left gland remained. This affection has been called by Hirschberg, *Mumps of the Lachrymal Gland.*

Dacryocystitis, according to a study of the subject made in the bacteriological laboratory of Guy's Hospital, by Eyre,[2] is not due to obstruction of the lachrymal passages, but rather to a long-continued

suppuration of the sac. The inflammation, he thinks, comes about as follows: (1,) Invasion of the conjunctival sac by the streptococcus pyogenes longus, resulting in an attack of acute conjunctivitis; (2,) Flushing of the conjunctival sac, lachrymal secretion, and the washing of the streptococcus through the canaliculi into the lachrymal sac by the stream of tears; (3,) Excessive secretion of mucus and exudation of leucocytes into the interior of the sac in the endeavour to remove the intruders; (4,) Invasion of the mucous membrane lining the interior of the sac by the streptococcus, the appearance of the organism in the submucosa, and finally in the cellular tissue surrounding the sac, and the consequent formation of pus in those situations to which it has gained access.

Rollet[3] holds that the immediate results of excision of the lachrymal gland for dacryocystitis are excellent when the operation is *complete*. The operation is indicated when dilatation and other means of treatment have failed.

REFERENCES.—[1] "Archiv. of Opth.," vol. xxvi, No. 1; [2] "Ophth. Rec.," Nov., 1897; [3] "Lyon méd.," No. 18, 1897.

LANDRY'S PARALYSIS. (See "Paralysis.")

LAPAROTOMY. *Priestley Leech, M.D., F.R.C.S.*

F. Holme Wiggin[1] gives the following useful directions for the treatment of patients before and after laparotomy.

If the case be chronic a week's preparation is best. Let the patient be in the hospital a week before the operation, or if the operation is to be done at home let the nurse be there a week beforehand. The patient should spend the greater portion of the time in bed, and during this time massage may be employed to advantage in lieu of physical exertion, as it improves the circulation, promotes digestion, and the general bodily welfare.

The emptying of the bowels is best accomplished by giving early in the week several small doses of calomel and soda, daily for three days. These are to be followed each morning by a saline, and this in turn on each of three succeeding mornings by a large enema, unless contraindicated (3 to 4 quarts of saline solution, 1 drachm to the quart). The rectum should be finally washed out with a pint of the same solution six hours before the performance of the operation.

The large enema is best given with the patient lying on the left side, a fountain syringe being used for this purpose, the reservoir of which should not be elevated more than three feet above the patient's body. A bulb syringe injects the fluid irregularly, and with too much force, and if carelessly used permits the entrance of air. The water should

have a temperature of 100° F., and should be introduced into the bowel slowly, being frequently intermitted as the patient complains of a feeling of distension or of intestinal colic. As a rule three or four quarts can be introduced in this manner in the course of half an hour. The physician should supervise the administration of these enemata.

The diet should be of an easily digestible nature, and he should be encouraged to partake freely of fluids; if needed, cardiac stimulants should also be given. Hot baths (110° F.) should be given daily, not only for cleansing purposes but also to promote the secretions of the skin and kidney. The pubis should be shaved the day before operation. A mild hypnotic should be given every other night; Wiggins uses a combination of sulphonal and chloralamid; this hypnotic should always be given the last night before operation.

It is wise to fix upon as early an hour as possible, as the patient has less time in which to become exhausted from want of food, or restless or nervous from the dread of what is to come. If the hour has once been fixed there should be no postponement, as Wiggins has seen patients almost collapse under the extra nervous strain entailed by half an hour's delay. If the operation is fixed for 8 a.m., the patient should be given a peptonised milk punch at 11 o'clock the previous evening, and if he awakens at 5 or 6 a.m., one ounce of liquid beef peptonoids may be given, but nothing more; this lessens the liability to heart failure, and also the nausea and vomiting which frequently follow the return to consciousness. If an afternoon hour has been decided upon another peptonised milk punch may be given when the patient awakes, and an ounce of beef peptonoids at 11 a.m.

In cases of an acute character a stimulant should be administered if the pulse is feeble or if the patient is suffering from collapse due to perforation; if in this condition the patient do not respond to the stimulants the operation should not be performed, as it will prove of no avail; if the patient rallies the operation should be done with as little delay as possible. If the anæsthetic to be used is ether it is advisable to administer hypodermically $\frac{1}{8}$ grn. of morphia with $\frac{1}{100}$ grn. of atropine, half an hour before the administration of the anæsthetic; this diminishes the amount of bronchial secretion and lessens materially the amount of ether to be given.

The abdominal incision is best made through one of the recti muscles, the muscle being split and not divided, and in most instances Wiggin leaves behind in the abdominal cavity a considerable quantity of normal saline solution at a temperature of 110° F., after irrigating the cavity freely with the same solution. The edges of the wound are approximated by means of a single row of silkworm gut sutures

which pass all through the different layers of tissues ; these are placed at least an inch apart and tied loosely ; a buried continuous silkworm gut, or cat-gut suture, brings the skin margins accurately together.

If, during the operation, the pulse rate increases by twenty or thirty beats strychnia is given hypodermically as needed until $\frac{1}{12}$ of a grain has been given. To this may be added $\frac{1}{100}$ grn. of nitro-glycerin every fifteen minutes. If, in spite of this, the pulse exceeds 150 per minute, give one or two pints of saline solution intravenously. After the patient has been removed to bed and surrounded with hot bottles, if the pulse is weak raise the foot of the bed and give a hypodermic of $\frac{1}{8}$ grn. of morphia, with atropine to quiet the patient and combat shock. After this one dose the morphia should be discontinued. It is not necessary to keep the patient in one position during the first three or four days. For the first twelve or eighteen hours nothing is given by the mouth except a little warm water. If the ether has been administered intelligently in small quantities there will generally be little or no vomiting and nausea. If the demands for fluids is urgent, which is seldom the case if saline fluid has been left in the abdomen, it is due to gastric irritation, and can be usually combated by two or three large doses of subnitrate of bismuth. If after twelve or eighteen hours there is no sickness or vomiting, a drachm of liquid beef peptonoids may be given every twenty minutes until four doses have been taken ; two hours later a little milk and lime water or peptonised milk may be given, and then every two hours half an ounce of liquid beef peptonoids or milk should be given. The quantity of milk should be increased until the patient takes 8 oz. of milk, or its equivalent, every three hours, but once during the twenty four hours the interval should be lengthened to six hours. The patient should be nourished, if need be, by nutrient enemata. If the patient does well no cathartic will be needed until the third or fourth day, when $\frac{1}{10}$ grn. of calomel and 1 grn. of soda should be given every half hour for five hours. If there is no evacuation within three hours after all the calomel has been taken, a seidlitz powder should be administered and repeated after another interval of three hours. The wound is dressed on the fifth day.

Complications.—The complications which may be encountered during the period of convalescence occur in the following order : concealed hæmorrhage, peritonitis, intestinal paresis, intestinal obstruction, and stitch abscesses. The decision as to the occurrence of hæmorrhage and the necessity of re-opening the peritoneal cavity should be made with great deliberation, as the unnecessary performance of this operation may seriously endanger the life of the patient. The onset of peritonitis is indicated by a gradual but persistent rise of

pulse beginning on the second or third day, by intestinal distention and rigidity of the abdominal muscles, whether accompanied by elevation of body temperature or not. If the pulse rate rises and remains in spite of our efforts above 120 per minute, the outlook is generally unfavourable.

As soon as this tendency of the pulse to increase in frequency after the first day is recognised an effort should be made to move the bowels by calomel followed by a saline ; if this does not act give another dose followed by a saline after an interval of several hours. A stimulating enema of 7 oz. of a saturated solution of sulphate of magnesia and an ounce of glycerin is often very effective. If the bowels act freely the patient is generally safe ; if the symptoms persist, open the wound and irrigate freely and clean as recommended by Finney.

The advent of intestinal paresis is marked on the second or third day by distension of the abdomen and the occurrence of more or less persistent vomiting, the contents of the stomach being ejected without nausea and the fluid being at first of a yellowish and later of a brownish colour, but not having a fæcal odour. As the colour of this fluid darkens, the prognosis becomes less and less favourable.

It is well to bear in mind that vomiting resulting from the administration of the anæsthetic usually subsides during the first twenty-four hours, but that it may follow the administration of morphia. When the diagnosis has been made wash out the stomach and give salines at frequent intervals until the bowels act, even if the saline be partially ejected by the patient, and give the stimulating enema given above.

Intestinal obstruction is differentiated from intestinal paresis by pain over the site of obstruction and more persistent vomiting accompanied by nausea, the vomiting matter having sooner or later a fæcal odour. As soon as diagnosed, open the abdominal cavity and free the intestine. In judging of the gravity of the patient's condition the facial expression is of great value to those who have had experience.

Wiggins also draws attention to the importance of keeping a record of the body temperature, respirations and pulse rate, for several days in advance of the operation, and making a final examination of the urine.

Don't administer cathartics too early or in too large doses to those convalescing from abdominal operations and who are pursuing a normal course.

REFERENCE.—1" Lancet," April 30, 1898.

LARYNX (Disorders of). *R. Lake, F.R.C.S.*

Tuberculosis of Larynx: Symptoms.—In early cases, Horne[1] distinguishes: (1,) Disturbances of sensation, hyperæsthesia, or hypæsthesia, paræsthesia ; (2,) Colour changes, anæmia, hyperæmia ;

(3), Functional disturbances; (4) Impaired movement apart from paralysis; (5) Changes in colour. Hypæsthesia was frequently associated with anæmia of the palate.

Anæmia of the larynx was noticed in one hundred and fifty-seven out of three hundred and fifty-nine cases of pulmonary tuberculosis; hyperæmia in one hundred and seventeen. The author also points out the fact that the preliminary aphonia of phthisis may be mistaken for hysterical aphonia. The cords are apt to look a dead white colour, due to the absence of the normal ventricular secretion.

EXPLANATION OF PLATE IX.

In the larynx depicted in *Fig. A*, one notes the following points: The effect of chronic laryngitis, in the thickening of the false cords and hypertrophy of the inter-arytenoid fold; paralysis of the arytenoideus, the triangular cleft being too large in the drawing; and, lastly, the effect of tubercular disease, shown by the pale œdematous arytenoids and ary-epiglottic folds, and partly by the inter-arytenoid hypertrophy. *Fig. B* shows a condition frequently met with in the earlier stages of laryngeal phthisis. It consists of a superficial affection of the cords. They present at first glance a reddish blush, which on closer examination is found to mask a coarsely granular surface. The writer, for want of a better name, proposes that it be called "chorditis granulosa." *Figs. C* and *D* are to point out the two more common situations after that shown in *Fig. A*, for warty growths in the larynx, when it is affected with tubercle. They are both below the cords, one in the inter-arytenoid fold, the other below the vocal cord. In *Fig. D*, also, one sees the right cord enormously swollen and hypertrophied.

Pathology.—A most important addition to the portals through which tubercle bacilli obtain ingress to the laryngeal tissues is made by Horne.[2] He shows that the ventricles are by far the most important of these. The earliest sign is a proliferation of the parenchyma of the acini and efferent ducts, and the formation of masses of small round cells, which choke the ducts and obliterate the glands. These changes, whilst occurring in the lymphatics of the ventricle, were absent in other parts of the larynx.

Bergengrün's theory of development of tubercles was shown to be correct, and, as a natural deduction, those parts of the larynx most bountifully supplied with lymphatics would be expected to be the most frequently involved. This is so in point of fact. Early functional failure of the muscles was shown to be due to changes in the fibres.

Surgical Treatment.—Gleitsmann,[3] at the International Medical Congress, gives the indications for **Curettement.** By curettement is meant not only the scraping of ulcers and the removal of softened

PLATE IX.

Laryngeal Tuberculosis.

Fig. A.—Paralysis of arytenoideus muscle, interarytenoid thickening.

Fig. B.—Hyperæmic condition of larynx with granular chorditis, a not uncommon condition in early laryngeal phthisis.

Fig. C.—Subglottic papilloma and unilateral interarytenoid swelling in laryngeal phthisis.

Fig. D.—Chronic chorditis on the left side, ulceration and destruction of the right cord in its posterior two-thirds, subglottic papilloma, and deep interarytenoid hypertrophy.

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tissue with a sharp spoon, but the removal by punch forceps of portions of tissue: (1,) Primary laryngeal tuberculosis; (2,) Circumscribed infiltrations and ulcerations; (3,) Dense, hard infiltrations of the arytenoid region, of the posterior wall, ventricular bands, and tuberculous tumours of the epiglottis; (4,) In incipient phthisis; (5,) In advanced cases to relieve dysphagia.

As contra-indications: (1,) Advanced pulmonary disease and hectic; (2,) Disseminated disease of larynx; (3,) Extensive infiltrations producing severe stenosis.

Lake[4] has removed the entire epiglottis by means of the galvano-cautery snare. The indications for this would be a sufficiently extensive disease of the part to preclude a rapid reduction by means of forceps. The same writer has designed a pair of forceps for the removal of diseased tissues from the glottic margin and superior glottic planes, and another pair for the removal of inter-arytenoid growths.

TREATMENT.—**Enzymol** has been used by Murray[5] for the removal of diseased tissue in the larynx with good effect. The drug is an artificial digestive agent.

Chloride of Zinc and **Carbolated Glycerin** are said by Zankenevitch[6] to be the most reliable drugs in the treatment of this affection. They are used in a strength of 1 in 5 to 1 in 10, according to the nature of the case. This will be used as a pigment. He also advises the following antiseptic solution in the form of a spray, especially in the initial catarrhal stage:—

℞ Ac. Borici	5·	Aq. Laurocerasi	50·
Ac. Phenici	·60	Aquæ	450·
Glycerini	50·	M.	

Przedborski[7] gives us the following as the chief points regarding **Phenol Sulpho-ricinate**, which has now been before the profession some little time. It is more agreeable than lactic acid, but its effects are apt to be more transient. The parts of the larynx least amenable to its influence are the *epiglottis* and the *ventricular bands*, especially when there is diffuse inflammation. In most cases it relieves pain.

Magenau[8] makes a useful communication: The drug should, he says, never be applied to a bleeding surface, as it irritates and does no good.

Lake advocates the intra-tracheal injection of:—

℞ Naphthalene	3-5 per cent.	Parolene	ad 100 per cent
Oil of Cinnamon	½ per cent.		

M. Sig.—Half an ounce daily.

High Altitudes.—Derscheid[9] analyses two hundred and seventy

cases which had been under treatment at Davos. Of these, the large number of one hundred and forty-five are declared to be cured, twelve nearly so, and thirty-two improved. The remainder were cases complicated with cardiac, renal, or other serious organic lesions. The contra-indications for high altitude treatment in laryngeal cases, above the general contra-indications, are laryngeal trouble in feeble people, and excessive irritability of the part. (See also "Dysphagia" and "Trachea.")

Preliminary Tracheotomy in Malignant Disease of Larynx.—Delavan[10] says that although in malignant disease of the tongue, jaws, and pharynx, this procedure is not required, yet he considers that it seems advisable in laryngeal cancer for several weighty reasons: The irritation caused by the insertion of the tube has time to subside; the new *modus operandi* of the respiratory function is established; the trachea, etc., become, as it were, acclimatised; the increased supply of oxygen to the system will enable the patient to better withstand the major operation; the advantage of rest will be marked on the affected part. The surgical advantages claimed are: Time is saved at the major operation; the anæsthetic is more easily administered; in the Solis-Cohen method the adhesion of the skin to the trachea is of advantage. The time that should elapse between the operations should be ten days, unless urgency is marked.

Glück[11] insists upon the observation of the following points in these operations: (1,) A preliminary resection of the trachea, and the use of Trendelenburg's cannula; (2,) Suture of the trachea to the skin; (3,) Restoration of the œsophagus and pharynx, by plastic or other methods; (4,) Careful plugging of the remaining gaping wound.

Sub-hyoid pharyngotomy and median osteotomy of the hyoid are operations in favour with some, especially for growths, etc., situated at the base of the tongue and its immediate neighbourhood.

Results of Extirpation of the Larynx.—Graf[12] gives the result of the last thirteen years' work in this direction by Von Bergmann. He has operated on forty-eight malignant cases of the larynx in that time. Twenty-eight were total; nineteen, unilateral; and nine, partial excisions. The results show two radical cures in the complete extirpation, with another alive and well nine months after operation, four half and four partial cases completely recovering. The great point is to shut off the wound in the complete cases from both trachea and pharynx, by stitching the pharyngeal mucosa to the base of the tongue; by bringing together two skin flaps, and by stitching the trachea to the skin. In the partial excisions, tampons give the desired effect.

Mikulicz[13] urges the importance of more universal use of the laryngoscope. He also advises the use of the *secondary suture*, to diminish the size of the wound and the inward growth of the epithelium. He obtained a cure in four out of thirteen cases. The duration of health up to the time of his communication was one and a half to eight and a half years.

Intra-laryngeal operation is highly praised by Fraenkel.[14] He says the operation is without danger, no other procedure gives better results, and the patient retains his voice. The operation is only indicated where the whole of the growth can be removed by this method. Any procedure, with the exception of the galvano-cautery, is permissible. Out of twenty-two cases no less than twelve were cured ; as Fraenkel says, "certainly a brilliant result."

Removal of Tumours.—Preliminary training of the patient, in the matter of removal of growths from the larynx, *per vias naturales*, was the subject of a paper by Middlemas Hunt.[15] He said that it was doubtful whether the present day laryngologists were as skilful as those who worked in the pre-cocaine period. He believed it to be advisable still to train one's patients for a short time ; it enabled one to obtain the exact curve of forceps, etc. He advised the use of a mop in the application of cocaine.

Lupus.—In view of the unsatisfactory results of endolaryngeal treatment, Gougenheim and Quinard,[16] in a case which had failed to respond to curettage and lactic acid applications, performed laryngo-fissure.

The epiglottis was removed entire, the granulations were scraped away, and the cautery used to the raw surface and to the interior of the ventricles. Six months later there was no return.

Perichondritis.—This is of frequent occurrence in syphilitic and tubercular laryngitis and in malignant disease of the larynx. It is believed never to be idiopathic, and is of extreme rarity in other diseases.

Fussell[17] quotes a case in which this occurred as an unusual complication of enteric fever. The attack was severe, and hoarseness was noticed early. At the end of five weeks the temperature fell to normal, and six days later the patient ate an apple. Almost immediately he was seized with a severe fit of coughing and signs of laryngeal stenosis. The stenosis continued, and on the third day tracheotomy was suggested, but refused. There was great swelling and œdema internally, whilst externally there was painful swelling of the thyroid cartilage. The œdema subsided, but the swelling remained, and, consequently, the stenosis. The patient died on the

seventh day, and at the *post mortem* a large perichondrial abscess was found at the posterior angle of the thyroid cartilage. There was no surface ulceration.

Paralysis of Larynx.—The width of the common respiratory triangle in a healthy adult male is, according to Semon,[18] 13½ mm., whereas after death the maximum width is 6 mm. in the male and 5 mm. in the female. Stridor begins the moment that the cords assume the cadaveric position. According to Semon, the abductors are endowed with an additional tonus over and above the amount necessary to maintain the laryngeal muscular equilibrium. Further, as Semon pointed out in 1886, and has since confirmed by many additional cases and facts, the abductors are affected sooner than the adductors in central lesions. He gives in his classical lecture several cuts from sections of paralysed muscles by Fredrichs, of Leipzig, which add, as it were, the coping to the theory.

Causes of Laryngeal Paralysis are tabulated by Semon as below:—

I.—Bulbar and Bulbo-spinal Affections.	*II.—Peripheral Affections.*
(1,) Hæmorrhage and softening.	(1,) Acute rheumatic influences.
(2,) Syphilitic processes.	(2,) Catarrhal neuritis.
(3,) Tumours.	(3,) Toxic influences (lead, arsenic, etc.).
(4,) Diphtheria.	(4,) Tumours in the posterior cavity of the skull, or in the foramen lacerum or foramen jugulare.
(5,) Progressive bulbar paralysis.	(5,) Pachymeningitis.
(6,) That curious form of systemic central nervous disease, first described by Hughlings Jackson and Morell Mackenzie, in which one-half of the tongue, the corresponding half of the palate, the corresponding vocal cord, and, in a number of cases, the corresponding trapezius and sterno-mastoid muscles are affected.	(6,) Traumatism (unintentional ligature of nerves, injection of iodine into a goître, cut throat, stabbing, injury during extirpation of goître, etc.).
(7,) Amyotrophic lateral sclerosis.	(7,) Tumours of neck (goître, peritracheal glands, etc.).
(8,) Disseminated cerebro-spinal sclerosis.	(8,) Aneurysms of the arch of the aorta, innominate, subclavian, carotid.
(9,) Syringomyelia.	(9,) Mediastinal tumours (malignant, tuberculous, calcification of bronchial glands, etc.).

(10,) Tabes dorsalis.

(10,) Pericarditis.
(11,) Pleurisy.
(12,) Tuberculosis and pleuritic thickening of apex of right lung.
(13,) Chronic pulmonary affections (chronic pneumonia, anthracosis, etc.).
(14,) Infectious fevers (typhoid, etc.).
(15,) Œsophageal carcinoma.

TREATMENT.—In that variety of laryngeal paralysis (peripheral neuritis) that follows diphtheria and scarlet fever, Daly[19] advises the interrupted current in adductor, and the constant current in abductor lesions.

Mycosis.—True fungus disease, or the mixture of keratosis and fungus growth, termed mycosis, is common in the fauces and their immediate vicinity, *i.e.*, the upper alimentary tract, but it does occasionally occur, and presents a similar appearance to that shown in other situations.

Price-Brown[20] reports this condition occurring in a boy twelve years of age, who, some six weeks after a bad cold, commenced to lose his voice. On inspecting the posterior part of one ventricular band—the left—there were seen several white projecting spots, the largest the size of a small grain of wheat. And there was one similar spot on the right ventricular band, near the arytenoid. There was no inflammatory areola around any of them. Friction with lactic acid, chromic acid, and nitrate of silver, was without effect. Careful application of the **Galvano-cautery,** however, enabled the disease to be overcome.

Membranous Laryngitis.—Schech[21] classes under this heading all those affections characterised by membranous exudation, with the presence of either vesicles or hyperæmia with swelling. In miliaria there are vesicles on the epiglottis and ary-epiglottic folds, with vesicles on the body generally; this gives rise to the sensation of a foreign body in the throat. Herpes is more frequent if unaccompanied by other lesions on the body; it may be confused with syphilis, etc. Aphthæ sometimes occur here. Variola and varicella affect the mucosa of the larynx. Foot and mouth disease may likewise be accompanied by vesicles in the larynx. In pemphigus the eruption is larger than herpes or syphilis. Urticariæ and lichen ruber planus may occur here, the latter more commonly. Impetigo herpetiformis, erythema nodosum and multiforme, are the rarest of all

For treatment, cocaine or eucaine, locally sucking ice, and, if necessary, tracheotomy, with any specially-indicated general treatment.

Hunt[22] narrates a case, in which there had existed a membranous laryngitis, in a lady, for no less than nineteen years. After much care and watching, the cause was found to be due to the secret application of tincture of cantharides by the patient.

Intubation.—The pressure ulcers, due to the tubes, are found by Bandraud[23] to occupy the anterior part of the cricoid ring, and the inferior portion of the arytenoid cartilages. The symptoms to which they give rise are hoarseness, aphonia, glottic spasm, and laryngeal stenosis. When this ulceration has taken place, tracheotomy should be done at once.

As an aid to tracheotomy, Von Bokarg[24] has practised a preliminary intubation since the year 1891. He maintains that the operation of tracheotomy is more easily performed, that there is no hurry, and that there is an entire absence of difficulty and the surprises so often met with.

To facilitate the introduction of the tube, Sibler[25] advises that one should "operate while on your knee." This means the patient's head should be so brought forward as to rest upon the knee of the operator.

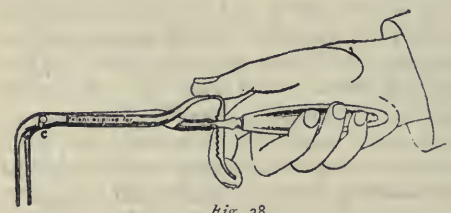

Fig. 38.

Fig. 39.

Thorner[26] has brought out some very ingenious modifications of the O'Dwyer instruments. The introducer and abstractor are one and the same (*Fig.* 38); it is somewhat similar to, but finer than, the original extractor. The tubes (*Fig.* 39) are made with an upper funnel-shaped end to the bore, and the base of the tube is cut obliquely from right to left, at an angle of forty-five degrees, to facilitate introduction.

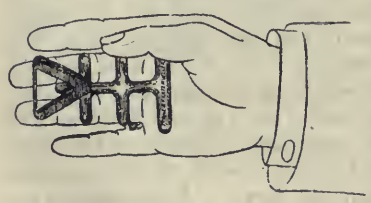

Fig. 40.

One of the chief advantages of the introducer is that the lumen of the tube is never occluded.

The gag shown in *Fig.* 40 is placed between the left back molars, and the hand at the same time steadies the face.

Laryngeal Vertigo.—Schardewaldt[27] regards this as a symptom, where we thoroughly agree with him.[28] He says the irritation of the superior laryngeal passes to the expiratory centre, and excites a fit of coughing; at the same time, it stimulates the cardiac inhibitory centre, causing cessation of its rhythm, with consequent cerebral anæmia and faintness. As opposed to faintness, the face becomes congested.

Mulhall[29] reports a case, and draws attention to its close resemblance to *petit mal;* in fact, Gray and Schrötter so name it. The course of an attack is, a few gentle coughs, adductor spasm, then spasm of the abdominal muscles and diaphragm in the expiratory attitude, and during the attack the face becomes congested by unconsciousness, which rarely supervenes.

Rheumatic Affections.—These are easily recognised when accompanied by rheumatic affections of the pharynx. But, according to Watson Williams,[30] it is easy to overlook the true cause. The appearance of rheumatic differs in nowise from simple laryngitis. The great tendency of the affection is to attack the crico-arytenoid joints, frequently ending in fixation of the vocal cords.

In gouty states of the larynx, redness of the cords is present; in less acute cases, a patchy inflammation; in the most severe, the cords become sore and thickened as to produce aphonia; in chronic cases, tophi may appear. Laryngeal spasm may occur, as a result of indiscretions of diet, from a sudden attack of gouty laryngitis.

TREATMENT.—Soothing applications; **Salol** and **Salicylates** in rheumatic cases; **Colchicum, Iodine,** and suitable mineral waters, in gouty subjects.

Erysimum, or hedge-mustard, is re-introduced by Hermanz[31] as a curative agent in acute catarrh. He advises its use as an infusion; it can be sipped practically *ad lib.*

Boltome[32] reverts to the old method of hot mustard baths to the feet, a dose of calomel in robust patients, tinctures of **Aconite** in minim doses until the physiological action is produced, and twelve to twenty-four hours' rest; also an alcoholic bath and brisk frictions.

To prevent dimming of Mirrors.—Vacher[33] rinses the mirror or wipes its surface with a 1 per cent. solution of **Bicarbonate of Soda,** thus removing all trace of grease. **Eau de Cologne** will do equally well, or even a little spirits of wine.

Laryngitis.—Yatcouta[34] uses **Formaldehyde** in the form of a cold inhalation, recommending a 5 per cent. solution. It is of especial

value in acute affections, such as acute laryngitis, acute coryza and acute Eustachian catarrh, the former yielding in twenty-four hours. He has also made use of a weak solution as a douche in coryza.

Airol is said by Professor Fasano[35] to be superior to iodoform and aristol—quick in action, and not dangerous in its effects. It may be employed as a powder, ointment, emulsion in glycerin or gauze, and is serviceable in laryngeal and nasal ulcerations, ozæna and chronic otorrhœa.

Menthol-Camphor is a compound camphor, a drug of fluid consistency resulting from a chemical union of the two drugs with a formula, $C_{10}H_{18}O$. It is used as a vapour in an atomizer, in a 10 per cent. solution in lanolin. It is of benefit in coryza, hay fever, hypertrophic rhinitis, tracheitis, etc., and is strongly recommended by Bishop.[36] (See also "Aphonia.")

REFERENCES.—[1] "Lancet," Aug. 20, 1898; [2] Ibid., Aug. 20, 1898; [3] "Journ. Laryng.," Dec., 1897; [4] Ibid., Sept., 1898; [5] Ibid., Aug., 1897; [6] "Med. Times and Hosp. Gaz.," Oct. 10, 1897; [7] "Journ. Laryng.," [8] Ibid., Dec., 1897; [9] "Treatment," Oct. 14, 1897; [10] "Brit. Med. Journ.," Nov. 27, 1897; [11] "Berlin. klin. Woch.," No. 25, 1897; [12] "Journ. of Laryng.," Aug., 1897; [13] "Therap. Gaz.," Aug. 16, 1897; [14] "Arch. f. Laryng.," Band vi., Heft 2; [15] "Journ. Laryng.," Aug., 1897; [16] "Ann. des mal. l'oreille," etc., Aug., 1897; [17] "Lancet," Sept., 1897; [18] "Brit. Med. Journ.," Jan. 1, 1898; [19] Ibid., Nov. 13, 1897; [20] "Amer. Journ. Med. Sci.," Sept., 1897; [21] "Münch. Med. Woch.," June 28, 1898; [22] "Journ. Laryng.," Feb., 1898; [23] "Thése de Paris," 1897; [24] "Arch. f. Kinderheilk.," Band xxii, Heft 4, 5; [25] "Cleveland Med. Gaz.," July, 1897; [26] "Cincin. Lancet Clin.," Feb. 19, 1898; [27] "Journ. Laryng.," July, 1897; [28] "Med. Ann.," p. 369, 1898; [29] "Laryngoscope," March, 1898; [30] Ibid., April, 1898; [31] "Presse méd.," Nov. 20, 1897; [32] "New York Med. Journ.," July 20, 1898; [33] "Ann. des mal. de l'oreille," etc., Sept., 1897; [34] "Rev. de thèrap.," April 15, 1897; [35] "Journ. Laryng.," Aug., 1897; [36] "Med. Standard," Feb., 1897.

LARYNX (Syphilis of). (See "Syphilis of Nose and Throat.")

LEAD POISONING. *David Hardie, M.D., Brisbane.*

In the last "Annual" reference was made to the occurrence of lead palsy in Queensland children. Since then a number have been under treatment at the Children's Hospital, making in all since 1891 seventy-six cases. An additional interest in this subject has been given by a paper by Dr. Lockhart Gibson entitled "Ocular Neuritis, simulating Basal Meningitis-Plumbism," which is founded upon twenty-four cases (included in the above), the first examples of which were considered to be basal meningitis. The most typical cases have headache and vomiting with more or less colic, pain in the back of the neck, with slight retraction of the head, paralysis of one external

rectus and marked, generally double optic neuritis, characterised by excessive swelling of the discs ; in some cases 5 diopters of swelling were measured. No albuminuria, and practically no temperature. Lead was found in the urine, and in some cases a blue line was observed on the gums. In one case wrist drop and ankle drop co-existed, while in two or three, these had been found to occur before or after an attack of ocular neuritis.

The affection attacks only those children who seem peculiarly susceptible to poisoning by lead, and rarely more than one of the same household. Very small doses of the poison would appear to be sufficient. In last year's reference, tank water was suspected as being the cause, and since then traces of lead have been found by the Government Analyst in a few specimens of tank water obtained from the houses of some of these children ; other possible sources cannot, however, be excluded. In all cases, including those under Dr. Gibson's care, the prognosis is good if the child is removed at an early stage from its home ; otherwise it may be serious. In the cases of ordinary lead palsy fatal results have occurred, and in the worst ocular neuritis cases sight has been entirely lost or greatly impaired. None of the latter have ended fatally.

The serious nature of the disease having become known to the Government, a Commission was lately appointed to investigate the matter, but unfortunately, through some difference of opinion as to the scope of the enquiry, the work of the Commission was stopped by the Government before any real practical work was done.

LEPROSY. *T. Colcott Fox, M.B.*

The assembly of an International Conference at Berlin, October, 1897, for the promotion of the scientific study of Leprosy and to seek means of prophylaxis, was of much importance. Histological and bacteriological demonstrations were followed by important discussions. The Conference voted the nomination of a Commission of twenty members to discuss and prepare the foundation of an International Society for the extermination of leprosy and to discuss, prepare, and create "Archives" for its study, comprising scientific, statistical facts, etc. A second resolution was adopted to the following effect: "In all countries where leprosy forms centres or takes a great extension, isolation is the best means of preventing the propagation of the malady. The obligatory declaration, surveillance, and isolation, such as are practised in Norway, ought to be recommended to all nations whose municipalities are autonomous and possess a sufficient number of doctors. It is necessary to leave to the administrative authorities

the care of fixing, under the advice of Sanitary Councils, measures in detail in regard to the social conditions of each country."

Such as have not the inclination, time, or capacity to study the three volumes of "Proceedings" of the Conference in detail in the various languages in which the communications were made will find an able *résumé* by Darier in the "Annales de dermatologie et de syphiligraphie," for October to November, 1897, which we will shortly summarise.

Etiological rôle of the Leprosy Bacillus.—Neisser reported on the question whether the bacillus was to be considered the unique, indispensable and sufficient cause of leprosy, and concluded that although the scientific proof was still wanting, in the absence of cultivation and inoculation in animals, its etiological *rôle* rested on sufficiently satisfactory evidence. Kaposi, without contesting this conclusion, brought evidence to show that cases occurred in which the bacillus could not be found, but this position was keenly contested. Another point discussed was the explanation of the varying phases of leprosy, whether due to the variable virulence or number of the bacilli, or a special predisposition of the patient's tissues, or the surroundings, such as climatic conditions, etc.

Channels of Transmission of the Bacillus Leprœ.—It was almost unanimously admitted that leprosy, an essentially human malady, is only transmitted from man to man, though this transmission might be immediate or meditate, as by clothing of all kinds, dressings, the use of a common pipe, infected habitations. Geill, of Java, contended that lepers fouled the soil, and so others became infected. Hutchinson's fish theory found no supporters. Much evidence was brought forward of infection through the skin. Sticker, however, affirmed that the initial lesion was a tubercle or, more often, ulceration, situated on the nasal mucous membrane, generally on the cartilaginous portion. This ulceration persists, and from it quantities of bacilli continue to escape. Jeanselme and Laurens, in Paris, had already directed attention to the frequency of nasal lesions, and Schaffer reported on the immense quantities of bacilli ejected from the buccal and nasal cavities. Gluck found nasal and laryngeal lesions in a very large percentage of lepers; the palate and pharynx are less affected; the lips and tongue still less. Others thought the nasal ulceration only a precocious lesion, as in glanders. It is a question whether these escaping bacilli are living.

Pathological Anatomy.—The morphology and the exact seat of the bacillus in the tissues and various organs were much discussed. Babes placed the leprosy organism very near Koch's bacillus and

actinomyces. It colours more easily than the former, and retains the colour less, but its distribution is far otherwise. It forms conglomerated colonies in globi and, perhaps, spores. Lawrence Herman stated that bacilli of different ages coloured differently. The exact seat of the bacilli has been hotly contested. Unna and his school contend that the regular, if not constant, site of the bacilli is extra-cellular in the inter-cellular and inter-fascicular lymphatic spaces. They are englobed in a gloea, a secretory or degeneration product of the bacilli. Neisser and the bulk of observers affirm that the characteristic masses of bacilli found are in cells (leprous cells of Virchow), containing one or more, more or less altered, nuclei and a vacuolated protoplasm. Darier says no one denies the existence of extra-cellular bacilli, and the gloea is admitted. He comes to the conclusion, after a review of all the specimens, that bacilli are often intracellular, and that they can be extra-cellular, and globi simulating cells can be formed by masses of bacilli being moulded into preformed canals.

The localisation of leprosy in various organs and tissues were the subject of many communications. Darier finds bacilli in the erythemato-pigmented macules (léprides) of leprosy, either scanty or as numerous as in leprous nodules (lepromata). The nearly pathognomonic structure and almost constant presence of bacilli permits in the majority of cases a certain diagnosis by biopsy. He thinks these léprides have a similar pathogeny to lepromata, *i.e.*, by the invasion of bacilli by way of the blood current, and should not be considered as specially due to troubles of innervation (neuro-léprides).

Contrary to Danielssen's opinion the lung lesions met with at the autopsies of lepers are most often of a tuberculous nature, but a true pulmonary leprous invasion can occur under the form of sclerosis in broncho-pneumonia and peribronchial nodules without tendency to caseation or ulceration. The existence of intestinal leprosy is less definitely established, and so with the spleen. Gluck called attention to leprous phlebitis of the great subcutaneous veins.

As for the nervous system Babes found bacilli in the cord in nine cases, three times in the anterior horns, and often in the spinal ganglia ; generally in the protoplasm of the nerve cells. Jeanselme in two out of five autopsies has met with a very pronounced degeneration of the posterior columns, and once concurrently of one of the lateral columns. Dehio and Looft think in anæsthetic leprosy that the nerves, sensory and motor, are affected centripetally, beginning with the macule in the skin.

Heredity.—The doctrine of transmission by heredity has lost ground

and is more than doubtful according to Besnier. Heredo-contagion by the placenta is possible.

Geographical Distribution.—Statistics with regard to the number of lepers in almost every country were forthcoming.

TREATMENT.—Darier remarks that if one cannot really *cure* leprosy at present, it is undeniable that it can often be mitigated in its course, and the state of the patient often wonderfully ameliorated.

Besnier brought forward evidence of the striking effects of attention to general hygiene, baths, methodical dressings of the lesions, energetic repeated **Cauterisation** of the nodules with the galvano-cautery, and progressively increasing doses of **Chaulmoogra Oil** (up to 200 drops or more).

Unna recommends **Soft Soap** and **Alexine** externally, in case of need caustics (**Caustic Potash** or **Phenol**), and internally **Strychnine** and **Ichthyol.**

Neisser believes in the iodine preparations, **Iodoform, Europhen.** Kalindero recommends the **Crude Petroleum.** Ehlers and Haslund think well of the soluble **Mercurial Salts.** Weber showed a patient much improved under **Salicylic Acid.**

The serum of Carasquilla, an empirical and not very scientific preparation, has been widely tried and has not been favourably received.

Prophylaxis.—Isolation and the treatment of the individual by occlusive dressings to his cutaneous and mucous membrane wounds, the disinfection of excreta, of linen and clothing and all soiled objects and infected habitations, are the means best adapted to prevent the spread of the disease.

LIVER (Injuries to). *Priestley Leech, M.D., F.R.C.S.*

Waring[1] in injuries to the liver advises immediate laparotomy when the signs and symptoms of hæmorrhage into the peritoneal cavity develop. The sooner operation is performed the greater are the chances of recovery of the patient. If the blood appear to come from the liver, or a rupture of this viscus is seen, the bleeding should be temporarily arrested by sponge pressure, or by pressure on the hepatic artery and portal vein. This can be done either by passing the hand underneath the inferior margin of the right lobe, placing the forefinger in the foramen of Winslow, the thumb in front of the lesser omentum, and applying pressure, or by using an instrument of which an illustration is given (*Fig.* 41).

To apply, the blades are separated ; the distal blade is placed in the foramen of Winslow, the proximal is put in front of the gastro-hepatic omentum, and then the two are approximated until the circulation in the vessels is arrested. Waring has used it in his later ex-

periments on dogs and has found it answer very well. It does not take up as much room as the hand and is more efficacious.

The rupture may now be sponged so as to remove all blood clot, and any blood-vessels which are visible on the surface of the wound are picked up with forceps and ligatured with silk. The pressure on the vessels may then be relaxed to make sure that no large branch of the artery or vein has escaped observation. The margins of the rupture may then be brought into apposition and fixed by the insertion of a series of sutures ; a fully curved Hagedorn's needle with a blunt point should be used ; medium sized silk is the best suture material, as cat-gut is more liable to slip. If too sharp a needle be used it may pierce the hepatic vessels. Each suture is inserted about a third of an inch from the margin of the rupture, and passed down through the liver tissue to the bottom of the wound and then through the liver tissue on the opposite side until it emerges at a point one third of an inch beyond the other margin. The sutures are inserted about a quarter of an inch apart and are all inserted before any are tied. Great care is required in tying the sutures, as they may cut through. If slight hæmorrhage or oozing occur from the margins of the rupture or the suture apertures in the liver, a strip of aseptic gauze should be carefully packed over the bleeding part and one end brought out of the abdominal wound. If the margins of the rupture cannot be brought together the vessels must be ligatured and the gap packed with long strips of aseptic gauze.

Waring also gives the various methods of removing hepatic tumours, and Auvray[2] and F. Ferrier and Auvray[3] have exhaustive articles profusely illustrated on excision and removal of hepatic tumours.

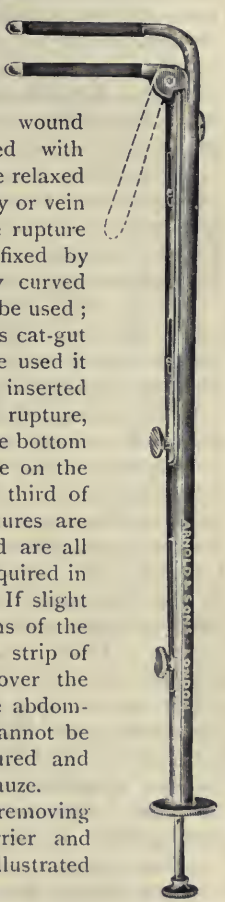

Fig. 41.
Compressor of Hepatic Vessels.

REFERENCES.—[1] Erasmus Wilson Lectures, "Brit. Med. Journ.," May 19, 1898 ; [2] "Rev. de chir.," April, 1897 ; [3] Ibid., May and Aug., 1898.

LOCOMOTOR ATAXIA. *Græme M. Hammond, M.D., New York.*

Grasset,[1] in his admirable paper read at Moscow, concludes that as there is no specific treatment for tabes, therapeutical indications can be drawn only from a knowledge of the nosological nature of the

disease. Tabes is well defined on the one hand by symptoms of its evolution (the clinical history); on the other by its lesions (anatomical history).

The etiology of tabes is as complex as that of multiple disseminated sclerosis. Syphilis is the most frequent cause, but arthritis, different intoxications, the neuropathic disposition, either hereditary or acquired, as well as other causes, play their parts.

He considers tabes curable. Facts prove clearly that it may be clinically cured, even though the lesions remain. Again, tabes may also present remissions and partial retrogressions of sufficient duration to be highly desirable for the patient. It is certainly not imperatively progressive.

We can class under three heads the therapeutical effects to be sought in tabes. We may seek first, to cure or diminish the pathological condition of the cord; second, to re-establish its deranged functions; third, to allay the distressing symptoms.

In the etiological treatment of tabes it is necessary to discuss principally the anti-syphilitic and the anti-arthritic remedies. First, anti-syphilitic treatment is not harmful; often it is beneficial, and occasionally it cures. At first the mixed treatment should be given for about three months; later, if it is necessary to return to it again, it is better to regulate the dosage according to the effect produced the first time. The employment of chlorinated and sulphurated waters is also indicated. Second, the anti-arthritic treatment embraces alkalies, iodides in weak doses, arsenic, and a particular diet and hygiene. Third, the treatment of the neuropathic condition in general.

The therapeutical agents directed to the lesion of tabes find their indications in the sclerotic nature of the lesion, or in its medullary localisation. First, for sclerosis, we employ iodides, especially the **Tincture of Iodine**; the **Salts of Silver**, if there is an intolerance for the iodides; **Rye Ergot** in the acute or subacute stages; and **Anti-sclerotic Diet** which is very important. Second, the means of local revulsion, directed more especially to the cord (in the acute and subacute stages), are certain electro-therapeutical measures, elongation of the nerves, and different methods of elongating the cord. Among these latter means, **Suspension** should be retained as a useful measure in essentially chronic phases of the disease. It is directed to an actual sclerosis after the first stages, or to a cicatrix rather than to the disease in its active and progressive stages.

The symptomatic treatment may be arranged in five groups: First, for the shooting pains and visceral neuralgia, all sedatives are

indicated—**Opium, Antipyrine**, etc. (avoid injections of morphine so far as possible). For the gastric crises, employ **Oxalate of Cerium, Chloroform, Cold Water, Electricity ; Sedatives** and **Mineral Waters** may also be used with advantage. Second, for the deficient muscular power injections of **Artifical Serum** and **Glycero-Phosphates** may be given, also **Tonics** internally, **Massage, Hydrotherapy, Electricity** and **Mineral Waters.** Third, for the ataxia, re-education of the muscles, according to Frankel's method, is a useful procedure ; by this method muscular movements are brought directly under the control of the will and thus the incoördination is diminished. Fourth, the combating of the symptoms of hysteria by the principle of **Suggestion.** Fifth, vesico-rectal, ocular, trophic, circulatory affections, and bulbar crises have their special indications in individual cases.

Lemoine[2] speaks favourably of the beneficial effect of **Methylene Blue** upon the pains of tabes. He experimented with the drug in nine cases with the following results : In two cases (exclusively gastric pains) there was no relief. In five cases the intensity and frequency of the pains were greatly diminished ; and in two cases there was complete cessation of the pain. The pains which yielded the most readily were the shooting pains in the limbs, and the girdle pains. The most refractory were the visceral pains, especially those in the stomach and rectum. The effect of the remedy was rapid, and the diminution of the pain occurred two or three hours after the urine was coloured blue. One advantage of the treatment was that the beneficial effect persisted sometimes for several weeks after the drug was discontinued.

Ostankow[3] has obtained excellent results in gastric crises from the use of **Oxalate of Cerium**. Doses of from 2 to 4½ grains were given three to four times a day. The attacks of vomiting were soon shortened, in some cases as early as the second day after treatment was begun. The pain, nausea, and thirst were all relieved.

Eulenberg[4] believes that nothing can be expected from derivative and revulsive measures, and the same may be said of the silver treatment. He considers it is difficult to estimate the value of anti-syphilitic treatment, and believes that harm often results from the injudicious use of anti-syphilitic remedies. He emphasises the value of **Morphine** and **Strychnine** under certain conditions and thinks that iodide of potassium, antipyrine, antifibrine, etc., are very uncertain in their action for the relief of tabetic pains.

As regards so-called organo-therapy, treatment by **Spinal Cord Extract** and by **Brown-Séquard Fluid** had been tried in severe cases with marked success. Nerve stretching never ought to be resorted

to. Suspension or stretching the spinal cord may produce improvement, especially in the ataxia.

Montgommery,[5] in the "Medical Chronicle," of Manchester, summarises the conclusions of De la Tourette and Chipault in regard to the remedial effect of stretching the spinal cord. The method of procedure advocated is to place the patient in a sitting posture, on a narrow table, the pelvis fixed, and the legs strapped down in an extended position. By means of a collar attached to the neck and shoulders any required amount of flexion of the body is produced by a cord and pulley. In the majority of cases the force used varied between sixty and eighty kilogrammeters. The maximum is, however, never employed at first. The sensation becomes, after a very short period, acutely painful, but after a few applications the patient is able to bear the operation comfortably. The sitting should not last longer than eight or ten minutes, and both the flexion and the relaxation should be done very gradually. Of the forty-seven cases treated in this manner twenty-two were very much improved in all their symptoms, and more especially as regards incoordination, pains, crises, anæsthesia, and retention of urine. For some reason incontinence was not so favourably influenced. Fifteen other cases were benefited, but the improvement was limited to one or two symptoms alone. Ten cases showed no improvement. None of the cases underwent less than fifteen or twenty séances. In general the treatment should not be prolonged more than three or four months.

Erb,[6] after pointing out that syphilis is the chief cause of the disease and that venereal and alcoholic excesses are other causes, speaks of the necessity of treating syphilis of the cord in its earliest stages, not only by ordinary methods, but by the patient visiting hot springs where active anti-syphilitic treatment can be carried on thoroughly. At the same time tonics, such as quinine, iron, and nux vomica may be administered and various hydrotherapeutic measures instituted. If the iodides are employed they should be given in doses amounting to 45 to 60 grains at least. The principal indication for the employment of the iodides consists in tertiary complications affecting the skin, mucous membranes, or the bones, and in cerebral syphilis; or in that form in which there are violent shooting pains and the rapid development of symptoms of ataxia, probably due to peripheral neuritis. In a few cases the **Nitrate of Silver** in ¼-grain doses combined with **Nux Vomica** three times a day over long periods of time, then stopped, and then resumed, seemed to be of value. The author has not observed benefit from ergot

but believes arsenic deserves a trial. The bromides are not to be employed.

The following prescription he has found very useful as a tonic :—

℞ Lactate of Iron 45 to 50 grs. | Ext. of Nux Vomica 5 to 10 grs.
Ext. of Cinchona 68 to 75 grs. | Ext. of Gentian q. s.

To be made into one hundred pills; 2 or 3 of these are to be taken after each meal.

For fulgurant pains the part affected may be wrapped in hot cloths, or small compresses wet with ether or chloroform may be employed ; or, instead, a spray of chloride of methyl or a mustard plaster may be used. In some cases the coal-tar products in full doses give marked relief. In very grave cases it is absolutely necessary to secure relief by injections of morphine. For laryngeal crises benefit may be derived from inhalations of chloroform and ether or a spray of cocaine. To combat the paræsthesias and anæsthesias the cathode of the galvanic current may be applied to the affected part.

For the atrophy of the optic nerve mercury and iodide medication is necessary. Full hypodermic injections of strychnine may be given; tincture of iodine may be used externally, or the actual cautery applied to the back of the neck. Should ataxia develop rapidly the patient must be made to take absolute rest, but should the ataxia be chronic the method of Fraenkel, based upon systematic exercise, possesses great advantage. For vesical troubles suspension does the most good, although hydrotherapy and strychnine are not to be forgotten.

Mendel[7] comes to the conclusion that trauma has not been clearly shown to be a cause of tabes. It often does cause a rapid development of pre-existing tabes, and in some cases tabetic patients, who until the occurrence of trauma had been able to work, have become unable to earn their support after the accident. It is probable that the conditions connected with trauma affect the disease, especially the long rest in bed. It is a well-known fact that tabetic patients have very imperfect use of their legs after a long confinement in bed. Hygienic conditions after such accidents also play a part in the development of tabetic symptoms. There is an important warning in this statement against prolonged rest cure with confinement to bed for tabetic patients

REFERENCES.—[1] "Med. Rec.," Jan. 22, 1898 ; [2] "New York Med. Journ.," July 10, 1898 ; [3] "Amer. Med. and Surg. Bull.," Aug. 25, 1897 ; [4] "Brit. Med. Journ.," Feb., 1898 ; [5] "Therap. Gaz.,' Jan. 15, 1898 ; [6] Ibid., Oct. 15, 1897 ; [7] "Journ. Nerv. and Ment. Dis ," June, 1898.

LUMBAGO. *Editorial.*

Mr. Jonathan Hutchinson[1] asserts, contrary to prevalent opinion, that the pain of lumbago is not in the lumbar muscles, or, indeed, in the loins at all; he has invariably found it to be in the sacral region, or in the sacro-iliac synchondroses. In the latter position it may be on one side only, but this is exceptional. There is so much peculiarity and definiteness about the pain of lumbago that it is a pity that it should not become an acknowledged type. Probably pain of a similar character occurs in other regions of the body. There are never any objective phenomena, and often there is little or no tenderness. It is a sleeping pain, and the thing that wakes it is not pressure, but movement. In many cases, so long as there is no movement the pain is entirely absent, but the slightest attempt to alter the position of the back produces agony. The pain itself may be compared to sheet lightning; it is not exactly a single flash, but it broadens out and quivers from side to side across the affected part, and leaves a hot glow behind it. The first attack is often very sudden, and disables its victim for the moment. As it is one of the large group of phenomena which go with the inheritance of gouty tendencies and exposure to the exciting causes of rheumatism, it will often not be present alone. Sciatica, hip-joint arthritis, and affections of the spinal articulations are amongst its most frequent companions. In these cases we must separate their several elements.

Lumbago is variable and transitory, whilst the pain of the other affections is usually more persistent and independent of movements. Lumbago in severe forms may shoot down the back of the hips and simulate sciatica; but unless the sciatic nerve be affected it does not pass far down the limb, nor is it attended by pain over the nerve trunk or wasting of the muscles. The liability to lumbago once experienced usually lasts the rest of life, and is influenced by season, weather, diet, and exposure, just as gout and rheumatic gout are. Its subject may be quite free the greater part of the year, but suffer for a month or more in early spring. The treatment consists of active exercise, care in diet, and warm clothing, especially across the hips. During the presence of pain the sufferer should, if possible, move about, even if he can only do so with assistance and bent almost double. After a time he will find the pain subsiding. In severe cases, unless the patient is unusually resolute, exercise is out of the question. Then recourse must be had, if not to Graves's favourite plan of cupping, to **Blisters**, **Sinapisms**, or the use of heat locally. Internally, **Alkalies**, **Aconite**, and **Colchicum** should be given. The patient should drink plenty of hot weak tea. As to the structures

actually involved, Mr. Hutchinson has no doubt they are the ligaments of the sacrum and the cartilage between the sacrum and ilium—the latter as the result of self-observation. The pain is too deeply seated to be located in the muscular fascia and too peculiar to belong to a structure so general.

Dr. Chas. J. Hare[2] says, "We have in **Dry Cupping** one of the most rapid and powerful means of removing somewhat deep-seated congestions and hyperæmia, and of alleviating or curing certain pains and conditions which are far less efficiently treated by liniments and by other forms of counter-irritation. In cases of head congestion, with dull, heavy pain and vertigo, where other remedies have failed, and where you do not think the abstraction of blood either desirable or requisite, dry cupping to the nape of the neck will not infrequently give great and immediate, but also permanent relief. The stitch of slight pleurisy is likewise relieved by it, and pleurodynia and certain allied pains, and especially sciatica. But its effect in some cases of lumbago is really striking. With that looseness of language which is, as I have said, so common amongst us, one constantly hears lumbago spoken of as a "rheumatic" affection. Rheumatism may doubtless affect the lumbar muscles, but that ordinary attacks of lumbago, or the similar pains which affect the interscapular and other muscles, have anything to do with rheumatism properly so called, I beg to deny. It does not occur at all frequently, or specially, in those who suffer from true rheumatism; it often occurs in those who never had an attack of general rheumatism, or even a pain in a single joint; it is not associated with any derangement of the urinary secretion; its onslaught generally, and its cessation often, are utterly unlike those of rheumatism, for the latter usually comes on and ceases slowly, while the onset of lumbago is frequently instantaneous, as from an awkward position, strain, etc., and its termination is occasionally almost as rapid; and, finally, dry cupping will sometimes cure lumbago as by magic, while it would have a sorry chance, I fear, against rheumatism.

"A man, for instance, previously feeling perfectly well, is seized, while pulling on his boot, with a pain, which grips him across the loins like a tiger's paw; to stand up or move one iota from his chair becomes an instant impossibility; the pain, liniments and frictions and hot baths notwithstanding, may thenceforwards last, though modified, for days or more. Hot ironing the part is an excellent remedy; but dry cupping over the affected muscles sometimes achieves a miracle—the patient can forthwith get up, march, and attend to his work."

The following formulæ have been recommended :—

℞ · Sol. Ac. Boric. Sat. Oj

Sig.—Half a glassful every four hours.

—(W. E. Putnam.)

℞ Atropine	gr. iv	Oil of Lavender		♏v
Oleic Acid	ʒj	Rectified Spirit	q.s. ad	ʒj
Castor Oil	ʒj			

Sig.—For local application.

—(Martindale and Westcott.)

℞ Ammonii Chloridi	gr. xx	Ammonii Carbonatis	gr. v

At dose in water.

Or :—

℞ Ammonii Chloridi	ʒiij	Spiritus Chlorof.	ʒss
Liquoris Hydrarg. Perchl.	ʒss	Infus. Gentian. Comp.	ad ʒvj

M. Sig.—Tablespoonful ter in die ex aqua.

—(R. Stuart Bennie.)

References :—[1] "Lancet," July 3, 1897 ; [2] "Pract.," Sept., 1897.

LUNG (Surgery of). *Priestley Leech, M.D., F.R.C.S.*

Bayer[1], during an operation for removal of a sarcoma of the thoracic wall, tore the pleura ; he sutured the tear and packed the wound ; three days later the operation was resumed when the pleura again tore, the lung collapsed entirely and sank out of sight. The patient was succumbing when Bayer seized the superior lobe of the collapsed lung with a pair of forceps and drew it out of the thoracic cavity through the large hole in the pleura, and fastened its lower border by three sutures about an inch apart to the periosteum of the sixth rib, which was immediately above the end of the tear in the pleura. The patient revived at once, and he saw the upper part of the lung breathing regularly.

He thinks this method is simpler than that recommended by Tuffier and Hallion, who have succeeded experimentally in similar cases of artificially filling the lung with air through the larynx or trachea. He recommends this process of fastening the lung, as a simple means of restoring its functions when in cases of extensive injury to the costal pleura, the pneumothorax can not be removed by simple closure of the wound.

Reference.—[1] "Centralbl. f. Chir.," Jan. 16, 1898.

LUPUS ERYTHEMATOSUS. *T. Colcott Fox, M.B.*

The etiology of the disease we call lupus erythematosus has long been a puzzle. Whilst the majority of dermatologists, as the result of clinical observation, and microscopical, bacteriological, and experimental research, have come to regard it as essentially distinct from

lupus vulgaris, there are yet many who recognise some close but mysterious connection with tuberculosis. Thus, Prof. Boeck,[1] who opened a discussion at the recent meeting of the British Medical Association at Edinburgh, found that in forty-two cases of the common discoid form, two-thirds presented signs of past or present tuberculosis, *i.e.*, tuberculous glands in the neck, corneal changes, or bone lesions, and possibly, in course of time, others would have declared signs. The inference drawn is that tuberculous accidents are associated with lupus erythematosus with exceptional frequency. Hutchinson and Crocker, in this country, have noticed a striking family history of tuberculosis. In the recorded cases of the acute malignant forms, several of the patients have died of tuberculosis, and this is true of other forms also.

To these arguments Boeck adds the frequent coincidence of other skin affections which we associate with tuberculosis, such as lichen scrofulosorum, and various acneform and necrotic lesions.

Whilst some observers hold that this association with tuberculosis is exaggerated, and point out the many cases in which tuberculosis has been proved absent, others find an explanation in that lupus erythematosus is prone to develop in people of low vitality and with poor circulations. Boeck holds that it must be admitted that tuberculosis plays an important part in the etiology, and is probably the real and essential cause. Lupus erythematosus, he says, only develops in certain cases of tuberculosis, just as only a few people possess an idiosyncrasy against quinine or antipyrine. There is certainly some other cause in action than such local irritations as heat or cold. Welch has suggested the presence of the tubercle microbe in some other form, *e.g.*, zoöglœa, but experimental evidence is against this. Nor does Allan Jamieson's suggestion of a tuberculous peripheral nerve infection, analogous to that in leprosy, seem tenable. Boeck finds a likely explanation in the circulation of toxins generated by the tubercle microbe acting on the vaso-motor centres of the skin in the first place, and afterwards on the parts of the skin in which the vaso-motor disturbances are set up.

It is interesting to compare this discussion with a similar one introduced before the American Dermatological Association, on June 1st, 1898. A. R. Robinson dealt with the etiology and pathology, and concluded that lupus erythematosus could not be a local disease caused by a multitude of agents. The continuous existence of the lesions was inconsistent with their production by toxins from other parts of the body. It is more probably a chronic infective process, with organisms at the seat of the lesion. Histological examination

demonstrated nothing resembling tuberculosis, but some other local infective granuloma. Robinson said that a decided reaction with tuberculin—in fact, in some instances more marked than in lupus vulgaris—has been observed in quite a number of cases. In the discussion but little support was given to the tuberculous theory, but Fordyce and Bowen brought forward some cases associated with tuberculosis. This coincidence Robinson explains by the poor nutrition of such patients.

The Treatment was discussed at both debates. In New York, Prof. J. C. White said that after forty years' experience he still held a well-nigh hopeless opinion regarding the curability of this disease. The number of complete and permanent cures that he had effected was sadly small, though of course cases of spontaneous involution were met with. The general indications were that if the case presented an inflammatory type, the most soothing applications (**Black Wash, Zinc Oxide, Calomel Washes, Zinc Paste,**) should alone be used at first, and they are appropriate from time to time, in every case, to meet conditions of hyperæmia. In chronic indolent conditions more stimulating and resolvent applications might be carefully used. He did not like the curette or cauterisation. The drift of the debate was to support White's conclusion. Several speakers expressed their disappointment with Schutz's local arsenical treatment. Bronson warmly recommended **Resorcin in Gelanthum** as a good reducer of hyperæmia

Unna,[2] who, in company with others, does not accept Boeck's view, but considers lupus erythematosus a local and unconstitutional affection, contributed to the Edinburgh discussion mentioned some remarks on the treatment. He said he would not like to state that the disease had ever been cured by internal remedies alone, though, on the contrary, many cases had yielded to the sole use of external remedies. He divided the internal remedies into two groups: (*a*,) Those which have a favourable influence on the injurious vaso-motor paralysis of the face, such as the alkalies, **Carbonate of Ammonium, Ichthyol, Salicylate of Sodium, Ergot**; and (*b*,) Those to which a not easily definable specific action has been attributed, as **Phosphorus** (Bulkley), **Salicin** (Crocker), **Tuberculin, Iodide of Starch, Iodide of Potassium,** and **Arsenic.** He had never seen l. erythematosus entirely disappear of itself.

With regard to external remedies, he formulated two rules: (1,) To use, in spite of the outward dryness, desiccating agents, such remedies as are stated to reduce an inflamed œdematous patch into a pale, dry, and non-inflammatory condition of the skin; (2,) To avoid every

remedy which might produce inflammatory hyperæmia and œdema, even if in other respects it answers certain indications well. The external remedies were divided into six categories, as follows :—

(1.) *The drying* powder, paste, or wash with powdery precipitate, as **Oxide of Zinc, Calamine, Subnitrate of Bismuth, Oxychloride of Bismuth, Calomel, Oleate of Mercury, Terra Silicea, Bolus Alba** and **Rubra, Salicylate** and **Carbonate of Magnesia, Amylene.** After a strong night treatment, Unna often uses in the day the following :—

℞ Oxide of Zinc		Carbonate of Magnesia	3·0
Boli Rubræ		Amyli Oryzæ	10·0
Boli Albæ	āā 2·0		

M. Ft. Pulvis cuticolor.

Amongst the pastes, the most important are the **Zinc Sulphur Paste,** with the addition of **Ichthyol** or **Cinnabar,** then the **Lead Vinegar Paste,** and the following :—

℞ Past. Zinc. Sulphuratæ	20	Resorcini	
		Ichthyoli	āā 1

M. Ft. Pasta.

(2,) *The Compressing Remedies* in order of merit are *perfectly neutral:* **Collodion, Gelanthum, Zinc Gelatin,** and **Engmann's** and **Unna's Compressing Bandages.** Collodion also is a vehicle for ichthyol, soft soap, and salicylic acid; gelanthum for the same, and for caustic potash (1–1000).

For irritable cases he prescribes :—

℞ Collodii	20	Or, Ichthyol-Sulfon	2
Ichthyoli	2		

For more indolent cases :—

℞ Collodion	20	Or, Sapon. Virid. and	
Sapo Virid.	2-4	Acid. Salicylici	āā 2

(3,) *Reducers of Hyperæmia,* such as **Pyraloxin, Chrysarobin Oxydatum, Ichthyol-Sulfon, Mercury** (in soap and plaster form), **Pyoktanin,** the **Soaps** and **Alkalies** (such as the caustics and carbonates in weak doses, soft soap, Unna's superfatted potash soap, and Hebra's soap spirit), and a properly used **Unna's Micro-Cautery.** The best form of application of the alkalies and alkaline soaps is in watery solutions soaked into bandages, and covered with an impermeable dressing. The other remedies in this group should be applied in plaster mulls or pastes. The alkalies and soaps, and then mercury and pyraloxin come nearest to having a specific curative action.

(4,) *Necrosing Remedies,* by which an endeavour is made to

destroy at once the diseased patch. **Salicylated Collodion, Salicylic-Cannabis-Plaster Mull,** and the following peeling paste are useful:—

℞ Past. Zinci, Resorcini, Æthere Solut. Ichthyoli, āā pp. æq.
M. Ft. Pasta.

(5,) *Ulcerative Remedies* are only to be recommended with the greatest reserve. Amongst these are strong **Pyrogallol Ointment, Collodion** or **Ointment of Sublimate, Pacquelin's Cautery, Chloride of Antimony, Ethylate of Sodium,** and equal parts of **Carbolic Acid, Tincture of Iodine,** and **Chloral Hydrate.** After elimination of the necrosed parts, mercury or mercury and carbolic acid plaster mull should be applied. Unna has found that recurrences were very frequent, even when scars were deep.

(6,) *Inflammatory Remedies* are also not in great favour, such as **Tincture of Iodine, Glycerin of Iodine, Perchloride of Iron, Nitrate of Silver, Nitrate of Mercury, Trichloride of Acetic Acid, Fowler's Solution, Carbolic Acid, Naphthol β, Pyrogallol** and **Chrysarobin** in small doses, **Resorcin** in strong doses, stroking with Paquelin's cautery, **Scarification, Electrolysis.** They can only be recommended in special cases and in experienced hands.

In the course of the discussion, Dr. Maar, of Copenhagen, mentioned that Prof. Finsen had dissipated patches after a long time by his method of **Concentrated Chemical Rays of Electric Light** or **Sunlight.**

Block,[3] of Hanover, who advocates mild measures, recommends for recent cases the application of a plaster containing carbolic acid and mercury at night, and inunctions with the following ointment during the day:—

℞ Oil of Cade	1 part	Green Soap	2 parts
Zinc Oxide	2 parts	Vaseline	q.s. ad 10 parts

M.

In nine cases J. Schütz[4] has met with excellent results from the topical use of a weak solution of **Arsenic**—a drachm of Fowler's solution, from 6 to 8 drachms of distilled water, and 2 drops of chloroform. This is to be shaken when it is used. It is to be penciled on the affected area night and morning, and allowed to dry. In from four to six days a mild inflammation shows itself, but it subsides in from four to eight days more under simple treatment. Then the pencilings are repeated, and they are better borne each time. The disease is usually cured in ten or eleven weeks.

Bisserié, by desire of Brocq, has carried out a treatment of lupus erythematosus by **Currents of High Frequency,** in six cases with encouraging results. Oudin's technique was observed, and Arsonval's

classical apparatus used. The spark or aigrette, with tension elevated by the aid of Oudin's résonnateur, was utilised.

The patient is seated upon a footstool resting on the floor. An electrode formed of a metallic armature ensheathed in a case of glass is moved over the patches. Between the metallic armature and the part treated there bursts forth a shower of fine sparks which traverse the walls of the glass casing. The patient thus feels only a heat which is supportable. Each point attacked is submitted to an application lasting at most one or two minutes. The glass gets so hot that it soon has to be changed. The applications were made bi-weekly at first, and later on once a week. At first the patches pale, and this is succeeded by an intense reddening extending far beyond the diseased areas. Thin crusts form. In all the cases a rapid amelioration was obtained. In two patients the cure was nearly complete after fourteen and eighteen applications. (See also "Tuberculosis of the Skin.")

REFERENCES. — [1] "Brit. Med. Journ.," Sept. 10, 1898; [2] Ibid.; [3] "Wiener klin. Woch.," Apl. 14, 1898; [4] "Archiv f. Dermatol. und Syphilis.

LUPUS OF LARYNX. (See "Larynx, Disorders of.")

MALARIAL FEVERS. *W. Gilman Thompson, M.D., New York.*

"Malarial affections of the eye" are discussed by Major T. M. Yarr[1] under the subdivisions of: (*a*,) Neuritis; (*b*,) Retinal hæmorrhages; (*c*,) Retino-choroiditis; (*d*,) Effusions into vitreous; (*e*,) Obscure affections; (*f*,) Quinine amaurosis.

The malarial parasite as observed in the paludal fevers of pernicious type in British Guiana are reported by George Thin,[2] of London, with illustrations. In comatose cases he found large numbers of parasites in the cerebral capillaries and small veins, as is usual in such cases.

The epidemic malarial fever of Assam, otherwise known as kala-azar, is described by Captain Leonard Rogers[3] of the Indian Medical Service, who regards it as directly infectious from person to person, as well as by soil transmission. He succeeded in checking an epidemic among the tea garden lines by removal and segregation of the natives.

An epidemic of malaria which developed on a ship leaving Glasgow Aug. 4th, 1897, for Calcutta, is reported by D. C. Rees,[4] with charts and blood-examinations. Nine days after leaving Colombo the epidemic began, which affected twenty-two persons.

C. E. Nammack,[5] of New York, writes of the differential diagnosis of Cuban malarial fevers, and commends the old treatment by **Opium** (gr. j), **Capsicum** (gr. j), and **Quinine** (gr. x), for the obstinate æstivo-

autumnal forms. One patient recovered after five days of malarial coma. He also reports a number of cases of mixed infection, *i.e.*, of malaria complicating typhoid fever.

Patrick Manson,[6] at the British Medical Association meeting in July, 1898, discussed the "Rôle of the Mosquito in the evolution of the Malarial Parasite." He, with Ross, found that the mosquito ingests the parasite with human blood, and the latter witnessed its flaggelation within the mosquito's stomach, and in the muscular lining of this organ he found oval pigmented bodies.

James Ewing[7] writes of the results of eight hundred blood-examinations in malarial fevers treated on the return of patients from the Cuban war, and W. Gilman Thompson[8] reports a number of cases of mixed infection, *i.e.*, of malaria complicating typhoid fever, in which the plasmodium was demonstrated, and the Widal serum reaction and other typical symptoms of enteric fever were present. In the majority of such cases the plasmodium is quiescent until convalescence from the typhoid fever begins, but in not a few instances the course of the latter was interrupted by malarial paroxysms.

A. M. Lesser[9] gives his treatment of Cuban malarias as follows: An initial saline cathartic was succeeded by **Gelsemium** for the headache, and small doses of **Quinine** at frequent intervals with **Hydrochloric Acid.** All food was withheld while the temperature remained above 101° F. During convalescence he placed great reliance in a combination of **Sulphur, Camphor,** and **Capsicum.** His experience was based upon two thousand four hundred and twelve cases.

REFERENCES.—[1] "Brit. Med. Journ.," Sept. 24, 1898, p. 870; [2]Ibid., Sept. 24, 1898, p. 869; [3] Ibid., Sept. 24, 1898, p. 891; [4] Ibid., Sept. 24, 1898, p. 893; [5] "New York Med. Rec.," Oct. 1, 1898; [6]Ibid., Aug. 20, 1898; [7] Ibid., Oct. 1, 1898; [8] Ibid.; [9] Ibid.

MASTOID OPERATIONS. *J. Dundas Grant, M.D., F.R.C.S.*

The following is an account of the chief operations on the mastoid region referred to in the sections on aural surgery in the recent issues of the "Medical Annual," notably in the section on Treatment (1896), in which the indications for the various operations are to be found. The precautions with regard to the *sterilisation* of the instruments and field of operation, as detailed in the "Annual" for 1898, are those currently adopted in general surgery, and, in view of the proximity of dangerous parts, they are all the more important in the operations in the region we are now concerned with. The whole scalp should be scrubbed and washed with 1 in 20 carbolic lotion, and the hair, if possible, cut short. In any case the area for two inches round the auricle should be shaved and sterilised *secundum artem.*

The anatomical considerations here prefixed to the description of the operations will, it is hoped, be found clear and useful.

On the outer surface of the macerated adult temporal bone, the following landmarks may be noted: The oval orifice of the *external auditory meatus* having, at its upper and postero-superior segment, a small pointed osseous projection, the *spina supra meatum*, behind and above which is a triangular fossa. The spine is sometimes absent, but the fossa may be considered constant. Close above the meatus is the backward continuation of the posterior root of the zygoma. This, when it gets behind the meatus, curves rather abruptly, upwards and backwards, and forms a ridge called the *temporal line*, which constitutes the posterior boundary of the temporal fossa. This line for a short distance behind the meatus

Fig. 42.—Diagram of the outer surface of the temporal bone showing the *external meatus*, the *spina supra meatum* and the *temporal line*. The dotted outlines indicate the projection of the *antrum*, the *facial nerve* and the *lateral sinus*.

corresponds roughly to the lowest part of the middle fossa. Openings extending above it almost invariably enter that fossa, those below it almost invariably escape it. After a little practice this line can be felt through the scalp on almost any head, and when the soft parts are incised and retracted, as for the mastoid operation, it can be made out with the greatest ease (*Fig.* 42).

In the typical bone the antrum would be reached by a drill passed horizontally inwards in the *triangular space* formed by the temporal line above, the postero-superior quadrant of the orifice of the meatus

in front, and a line tangent to the latter at its horizontal equator, running vertically upwards, to join the temporal line.

Below this the mastoid process bulges slightly on its outer surface at the level of the meatus, marking the position of the *cortical mastoid cells.*

At a variable distance behind the orifice of the meatus lies the bone, covering the outer part of the *groove over the lateral sinus.*

It will be noted that the *posterior wall of the external meatus* does not run directly inwards, but slopes very obliquely forwards and inwards, so that the posterior margin of its inner extremity is in a line with the vertical equator of its outer orifice.

The upper part of the tympanic cavity extends for some distance above the level of the tympanic membrane, containing the heads of the ossicles and being known as the *attic.* The roof of the meatus is fairly thick, that of the attic extremely thin, the difference corresponding to the height of the attic itself. *The posterior wall of the tympanum* only extends to the height of the upper margin of the tympanic membrane. Therefore, there is no posterior wall to the attic, and the cavity is continued backwards into another of about the size of a green pea, the *mastoid* (petrous or tympanic) *antrum.*

Fig. 43.—The tympanum, antrum, and mastoid cells from an injected specimen (Siebenmann).

The passage above the posterior wall of the tympanum, by which the attic communicates with the antrum, is known as the *aditus ad antrum.* Out of the antrum there open in all directions a large number of spaces, "*the mastoid cells*"; the most prominent of these extend forwards and backwards in a radiating way into the mastoid process and to its very tip. They vary in shape, but are generally flask-like, and communicate with the antrum by means of comparatively narrow necks. The tympanic cavity proper, attic, antrum and mastoid cells are all lined with the same mucous membrane (*Fig.* 43).

On the inner wall of the tympanum, just above the fenestra ovalis and almost exactly at the level of the upper margin of the tympanic membrane lies *the bony tube of the hiatus Fallopii*, containing the facial nerve. When this reaches the posterior wall of the tympanum,

it runs downwards and obliquely outwards till it reaches the stylo-mastoid foramen. In the lowest part of its course it lies deeply in the posterior wall of the external meatus, but only in the innermost $\frac{1}{12}$ of an inch. Complete removal of the posterior wall of the meatus would then involve facial paralysis, so also would partial destruction of the posterior wall of the tympanum. The removal of the outer part of the osseous wall of the meatus may be effected without this risk, and the inner part may be removed down to the level of the floor of the aditus. The antrum may therefore be opened through the deeper part of the postero-superior wall of the external auditory meatus.

On the inner wall of the antrum, just posterior to the aditus, lies the convexity of the external semi-circular canal.

Variations in the Mastoid Process.—The above description of the mastoid cells is applicable to about 36·6 cent. of cases—the pure "*pneumatic*" mastoid. On the other hand, in 43·2 per cent. the air-cells are interspersed with considerable areas of *diploetic* or *cancellous* tissue, while in the remaining 20 per cent. there are no air-cells apart from the antrum, and the bone external to it is entirely diploetic, eburnated or *sclerotic.* It is probable that this last condition, which is so commonly found in operations for very old-standing suppurative disease in the tympanum and antrum, is the result of chronic inflammation. On the other hand, an almost exaggerated type of pneumatic mastoid is found with great frequency, in the writer's experience, in acute suppurative otitis. This would confirm Bezold's view, that a large cell is more susceptible to infection. The suppuration is all the more troublesome if the neck of the cell is relatively or absolutely very narrow and easily blocked up. Politzer believes that this takes place with some frequency in influenzal otitis.

The *lateral sinus* is usually situated behind a line drawn vertically through the middle of the mastoid process, and is then unlikely to be injured during the opening of the antrum. In other cases it comes further forward, and is apt to be exposed or injured. In a smaller number still, it bulges so deeply (forward) into the petrous bone that it is impossible to reach the antrum through the mastoid region, and it has to be opened through the postero-superior wall of the osseous meatus. Lake, in an examination of twenty-eight temporal bones, found the first condition in twenty-four (86 per cent.), the second in two (7 per cent.), and the third in two (7 per cent.). The more dangerous conditions are believed to be more frequent on the right than the left side, and in brachycephalic more than in dolichocephalic skulls. These facts indicate the need for caution in operating, and the advisability of preliminary practice on the dead subject.

The tracings of sections of temporal bones on which Lake's views are founded are here appended. They are horizontal sections at the level at which the operative opening of the antrum is made, namely, that of the fossa of the supra-meatal spine, marked in each case by

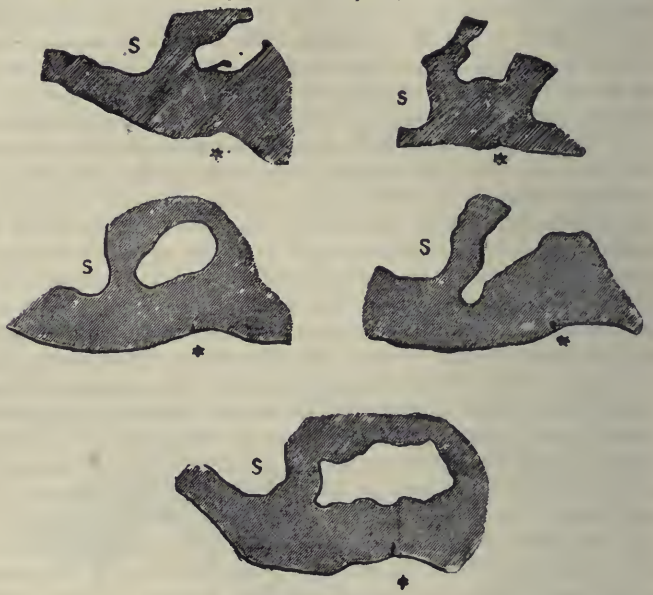

Fig. 44.—86 per cent.

an asterisk. The lateral sinus is marked by the letter S (*Figs.* 44, 45, and 46). The bone is in every case depicted as a right-sided one, so the white space to the right of the sinus represents the antrum. The

Fig. 45.—7 per cent.

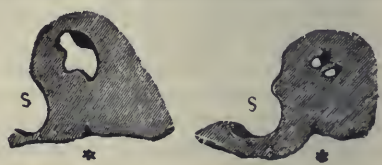

Fig. 46.—7 per cent.

tracings give a good idea of the depth at which the antrum is likely to be found.

In the Infant the antrum, which is the only air-cell present, lies

close under the cortex, covered by bone of from 1 to 2 millimèters in thickness. As the child grows more bone is deposited, and *up till*

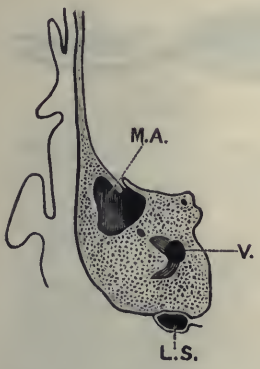

Fig. 47.—Coronal section 6 mm. behind the meatus in a child three months old (Symington).

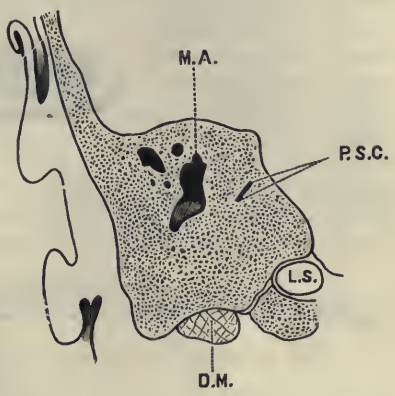

Fig. 48.—Coronal section 1 cm. behind the meatus in a girl nine years old (Symington).

M.A.—Mastoid Antrum; V.—Vestibule; L.S.—Lateral Sinus; P.S.C.—Posterior Semicircular Canal; D.M.—Digastric Muscle.

puberty the covering increases gradually till it reaches finally as great a thickness as one centimèter (*vide Figs.* 47 and 48).

After puberty the air-cells develop by absorption of the cancellous bone, and the adult conditions above described are gradually produced (*vide Fig.* 49).

In the following *operations* the "chiselling" described should be carried out as much as possible by means of a hand-gouge, of which Colin's

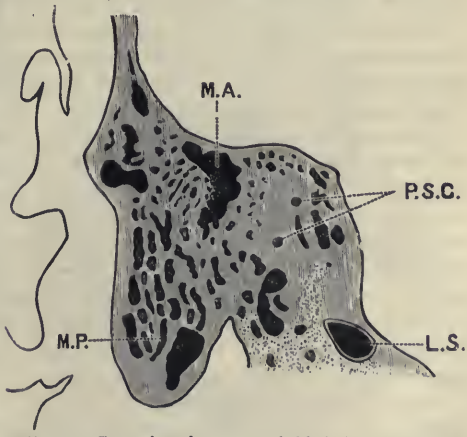

Fig. 49.—Coronal section 1·2 cm. behind the meatus in an adult male subject (Symington).

M.P.—Mastoid Process. (Other indications as above)

(*Fig.* 50) is one of the best types. Ballance makes almost exclusive use of an instrument of this kind, preferring, however, that it should have a square end—not rounded corners. Macewen advocates the use of a rotating "burr" worked by a dental engine. Most operators employ a gouge and mallet, and our preference is for the form of gouge devised by Stacke, in which the cutting-edge is curved backwards so as to grip the bone with less likelihood of slipping. We find it convenient to have the shaft considerably lengthened (*Fig.* 51). Care should invariably be taken to have the gouge *as sharp as possible*, so that the work may be accomplished with the minimum of hammering.

Fig. 50.—Colin's hand-gouge.

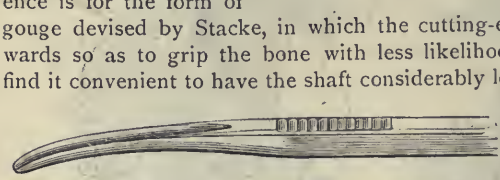

Fig. 51.—Stacke's gouge (length not shown).

Wilde's Incision.—With a strong scalpel an incision about one inch in length is made nearly a quarter of an inch behind the middle of the line of attachment of the auricle, and extending down to the bone. This incision may be made during nitrous oxide anæsthesia. It has fallen into somewhat unmerited disrepute owing to the methodical use of cold-coils or ice-bags, but it may well be restored to favour in view of the favourable turn it has determined in cases where symptoms of threatening severe mastoiditis have been observed. It does not prevent further operative procedure if required, and the cut can be lengthened in the appropriate directions.

Operation for Mastoid Neuralgia.—The "Wilde's" incision is made as above, and after the stoppage of hæmorrhage from the larger vessels, the periosteum is pushed forwards and backwards by means of the elevator. The lips of the wound are drawn apart by means of broad four- or five-pronged retractors, which at the same time keep the capillary hæmorrhage in check. Then, by means of a gouge and mallet a superficial layer of bone about the size of a sixpence is chiselled off. The wound is stitched up with a small "wick" of iodoform gauze at its lowest angle, and an antiseptic dressing is applied.

Cortical Mastoidotomy (*Plate X*, *Fig. A*).—This is, in the writer's opinion, the "typical" operation for mastoiditis secondary to *acute* suppurative otitis media. Incision and retraction of parts are practised as for mastoid neuralgia. The gouge is applied one-third of an inch

PLATE X.

Mastoid Operations.

Fig. A.—"Cortical" Mastoidotomy.

Fig. B.—Mastoid Antrotomy.

Fig. C.—"Radical" Antrotomy and Atticotomy.

SCOTT. & FERGUSON, EDIN'R

behind the meatus, and a thin layer of bone is chiselled off, about the size and shape of the outer orifice of the osseous meatus, and about half an inch above the tip of the mastoid process, its upper margin being about a third of an inch below that of the meatal opening. If pus is not at once or soon reached by very cautious deepening of the osseous wound, the opening is continued downwards even to the very tip of the process by means of the gouge, the sharp spoon and the gouge forceps. When it is reached the abscess cavity is scooped out with the sharp spoon. (Blake recommends that this instrument should have a long, up-turned lip at the point, so that the parts may be felt before each scraping. In this way we can assure ourselves that the tissue we are about to scrape away is seated on bone, and that it neither is nor lies on the dura mater or lateral sinus.) All soft crumbling bone and granulation tissue should be removed, and any overhanging bone should be chipped away by means of the gouge and mallet or the gouge-forceps. The edges may be smoothed, and indeed much of the enlargement of the opening may be effected by means of a rose-headed "burr" or osteotribe. A search should then be made with a curved probe for an opening leading from the cavity upwards, forwards, and inwards to the antrum, and if such is found it should be cautiously enlarged. As a rule, however, in *acute* cases no attempt should be made to open the antrum or to make an artificial opening into the meatus. The cavity is then swabbed with a solution of chloride of zinc (℥ss ad ℥j), dusted with iodoform, and plugged with iodoform gauze, an antiseptic dressing being applied and left *in situ* for five or six days, unless soakage, fever or pain call for its earlier removal. In the last case, a boracic fomentation covered with oil-silk may be renewed every three or four hours with advantage.

If the osseous breach is large, it should be kept open by means of iodoform gauze. If very small it may be closed up at once. In most cases it has to be plugged for a few days, the two extremities of the skin-wound being sutured to reduce this to the size of the osseous one. Afterwards, if all goes well, sutures may be used to bring about complete closure—the "late" stitch (spät-naht) of Gruber.

The practitioner may often ward off immediate danger by means of the above-described operation, even though from want of special experience or from other unfavourable circumstances he may hesitate to carry out the more complicated modern procedures by which alone a permanent cure in chronic cases of suppurative inflammation of the middle ear is to be attained.

Mastoid Antrotomy (*Plate X, Fig. B*).—A crescentic incision is

made a quarter of an inch behind and parallel to the attachment of the auricle extending from the highest point of that attachment down to the tip of the mastoid process, this bony land-mark being firmly pressed on by the thumb or finger of the left hand, the auricle being, as usual, held forward by an assistant.

The incision being carried right down to the bone, the periosteum is detached and pushed forwards and backwards by means of an elevator. It is then held by means of broad-pronged retractors. (Those devised by Dr. Max Thorner, which are made self-retaining by means of a looped bandage or elastic band passing round the head (*Fig.* 52), are very practical, and save an assistant.) Hæmostasis being made as complete as possible, the *spina supra meatum* is to be sought for, and, in any case, the postero-superior part of the outer orifice of the bony meatus must be localised. The outer surface of the mastoid region and the postero-superior wall of the osseous meatus are to be explored carefully by means of straight and bent probes for the presence of any opening in the bone in the supra-meatal triangle.

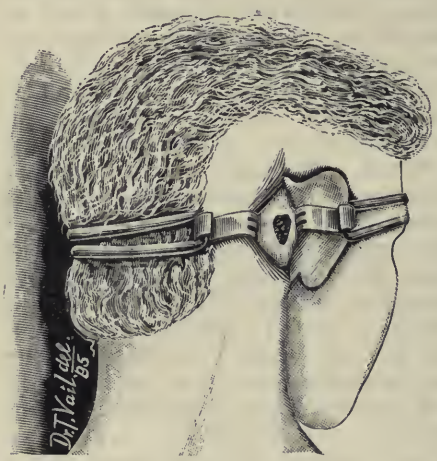

Fig. 52.—Thorner's Retractors *in situ.*

Should an opening be found, a probe is introduced and its direction carefully and gently determined. By this means the nature and extent of any cavity into which the opening leads may be made out. Then, with a gouge and mallet, or, if practicable, a rose-headed burr, the opening may be enlarged and the outer wall of the cavity removed, the deeper parts being protected by a strong bent probe (*vide Fig.* 54). The sharp spoon may then be used for the removal of inspissated pus, epithelial *débris*, and granulation tissue; the parts may be gently swabbed and—if care be taken that the liquid does not run down the Eustachian tube—syringed with boric acid solution. The cavity must next be disinfected with chloride of zinc solution (ʒss ad ʒj), dusted with iodoform and boric acid powder,

and plugged with iodoform gauze, an antiseptic dressing being applied over all.

Should no opening be found, the antrum has to be sought for under the guidance of our knowledge of its anatomical position. The periosteum is pushed well forwards so that the superior and posterior margins of the osseous meatus are freely exposed. The opening into the antrum is to be made in a triangle bounded by the *temporal line* above (this is the continuation of the posterior root of the zygoma, with the feel of which it is easy to become familiar), the postero-superior quadrant of the meatal orifice below, and the tangent to the posterior margin of the meatus behind. It must on the surface be more extensive and oval in shape. Its highest margin should be just below the temporal line, its foremost one at the posterior margin of the osseous meatus, and in size and shape should be very much the same as the external orifice of the meatus. The excavation must extend forwards and inwards parallel to the meatus, and at its posterior part it should be very shallow, as the anatomical relations of the lateral sinus above described would indicate. With a gouge directed forwards and inwards a moderately thin layer of bone is to be chiselled off, followed by the removal of successive layers, careful search being made each time for pus or granulation tissue, as also in the lower posterior part of the opening for the protrusion of the lateral sinus if exceptionally far forward and in the upper part for the *dura mater* of the middle fossa. The exposure of these parts is of no moment as long as they are not wounded. At the depth of half an inch the antrum should be found, unless, as in some cases, its lumen has been diminished by the sclerotic thickening of the petrous bone in which it lies, as the result of chronic inflammation. The cavity is then cleared and the wound dressed as above described. The proceeding thus far described is the operation as originally practised by Professor Schwartze.

If the antrum is not found at this depth, it has to be attacked from the postero-superior wall of the osseous meatus, and Von Bergmann advises this method of procedure from the outset. It must be remembered that the posterior meatal wall does not run perpendicularly inwards, but inwards and very much forwards. Its inner extremity is thus considerably anterior to its outer one. An instrument driven horizontally inwards about the middle of the posterior wall and near its upper part would enter the antrum. To achieve this entrance the cartilagino-membranous meatus must be separated from the osseous by means of a small raspatory, and held firmly forwards against the

anterior wall by a suitable retractor of which Schwartze's (*Fig.* 53) is the best. Under good illumination by a pendant light, or better still a forehead reflector or forehead electric light, the bone is carefully chipped away with a small gouge. As in most cases the membrana

Fig. 53.

tympani is already in part destroyed, a bent probe (*Fig.* 54) can be passed through the passage (aditus) leading from the postero-superior part of the tympanum to the antrum, and by means of this one's bearings may be taken (*Plate X, Fig. B*). The probe is also to be used as soon as a

Fig. 54.—Author's antrum probe.

breach is made into the antrum, so that the position and extent of the cavity may be determined. This has to be laid as freely open as possible, and any morbid contents have to be scraped out by the cautious use of the sharp spoon.

It then remains to slit the membrano-cartilaginous meatus longitudinally along the superior part of its posterior wall (*Fig.* 55), to push the upper and lower flaps thus forward back into the osseous space, to disinfect with zinc chloride, dust in iodoform, and plug the flaps into position with a strip of iodoform gauze passed through the meatus or the posterior mastoid wound. It is best to introduce the strip through the meatus and out at the mastoid wound, rather than by the reverse route, so as to avoid the risk of detaching the flaps instead of fixing them. A dry antiseptic dressing is placed over all.

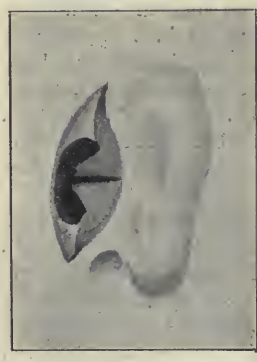

Fig. 55.

Atticotomy.—For the exposure of the attic of the tympanum alone the same incisions having been made as before, the membrano-cartilaginous meatus is stripped forwards in the same way, and the inner end of the meatus is cut nearly across, its anterior attachment being left undisturbed. The posterior part is held close

against the anterior wall by means of Schwartze's retractor as before or, disregarding the attachment of the anterior part, the entire funnel of the membrano-cartilaginous meatus may be turned out, and held out of the way by means of a piece of bandage pushed through it, as shown in the coloured plate. By means of reflected light a view is obtained of the outer wall of the attic. As a rule the ossicles have already been removed, but, if not, their removal may now be effected should it be indicated. The bent probe or Stacke's protector is now inserted into the attic (*Plate X*, *Fig. B*), and with a small gouge the outer wall is soon removed by means of a few gentle blows with the mallet. Granulation tissue or cheesy matter is scraped out, and the part is cleansed and dusted with iodoform. The soft parts are replaced, the meatus is plugged with iodoform gauze, and the mastoid wound is stitched up and dressed.

Combined Antrotomy and Atticotomy (*Plate X*, *Figs. B* and *C*).—This is the typical "radical" operation most often required in chronic cases, as the attic is obviously unlikely to be seriously affected without extension to the antrum. There are, however, differences of opinion, as to whether the antrum should be taken first (modified Schwartze's operation), or only after exposing the "attic."

In the former case the antrum is opened as already described, the osseous wall between it and the meatus is removed (the casing of the facial nerve being carefully avoided), and then the outer wall of the attic is cleared away.

After the opening of the antrum there will then, of course, be two tubes, in front the meatus, behind and slightly above it the artificial opening leading to the antrum (*Plate X*, *Fig. B*), and a partition between them. This partition should, as a rule, be removed by means of gouge and mallet, and such bone-forceps as Ferrer's modification of Zaufal's. This should be done in the outer part as completely as the position of the lateral sinus in the particular case allows, but at the inner part a ridge must be left on the floor sloping up to the aditus into the antrum. The lower half of the wall at its innermost part ($\frac{3}{20}$-$\frac{4}{25}$ of an inch), which encloses the facial nerve, must be carefully avoided. The upper part must be removed if the operator's familiarity with the region at all justifies it, a sharp lookout being kept by the anæsthetist for any twitchings of the facial muscles, which would indicate that the nerve was being irritated and possibly injured. By working down on the bent probe or Stacke's protector (*Fig.* 56), as below described, this accident should be avoided.

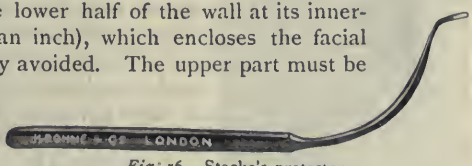

Fig. 56.—Stacke's protector.

When the outer portion of the partition is removed there will remain at the innermost part a narrow bridge continuous with the wall of the attic. It is on the complete removal of this that the success of the operation primarily depends, so that the "bottle" of the antrum may be converted into a "basin." The author's probe (*Fig.* 54) or Stacke's protector (*Fig.* 56) is introduced as in *Plate X*, *Fig. B*, and care is taken to pull against the outer wall of the attic, away from the facial nerve in the inner wall of the tympanum. A chisel (flat rather than hollow) is then applied against this outer wall, and the "bridge" is cut through at its upper part. The probe is turned backwards into the aditus, and the chisel is employed to cut through the lower part. A triangular piece of bone is thus detached, and after the removal of all overhanging projections the meatus, tympanum, attic, antrum and artificial opening should form one cavity, as shown in *Plate X*, *Fig. C.*

Should there be a difficulty in reaching the antrum from without, or should it be preferred to work from within outwards, as is, indeed, an excellent plan, the outer wall of the attic is chiselled away as before described, the guard or bent probe is passed into the aditus ad antrum, the deeper part of the posterior wall of the meatus as high as the level of this opening is further cleared, then, under the guidance of the probe the wall of the meatus is removed so as to open the antrum in all its extent. Thereafter the osseous partition between the antrum and meatus is cleared away as completely as possible, leaving an oblique ridge under the inner part of which lies the facial nerve.

Fig. 57.—Panse's flap.

If by chance the lateral sinus is wounded, the profuse hæmorrhage is easily checked by means of a plug of iodoform gauze. The operation has then usually to be suspended for a week.

Three methods of arranging the soft parts, after the stage of the operation affecting the bone is concluded, are used according as there is: (1,) Attic disease and a small antrum; (2,) Attic disease and a large cavity in the petrous bone; (3,) A large cholesteatoma in the petrous bone.

(1,) If there is *attic disease and a small antrum:* There may be made a postero-superior "tongue" out of the cartilagino-membranous meatus, and the mastoid wound may be closed up at once. For this purpose a dissecting forceps is introduced into the meatus as

a guide, and the tube is divided longitudinally by a probe-pointed bistoury along its upper wall from within outwards, the cut extending quite into the concha. The same is done close to its posterior meridian (*Fig.* 57). In this manner a postero-superior tongue-shaped flap is formed. By making the cuts well into the concha, the meatus is enlarged so that any subsequent secretion can be readily reached and removed. The flap is pushed back into the osseous breach, and to keep it in position a stitch is passed through the anterior lip of the mastoid wound, then through the flap, and then out through the posterior lip and tied (*Fig.* 58).

Fig. 58.—This is a slight modification of Panse's method of adaptation.

(2,) If there is *attic disease and a large antrum:* After the conclusion of the operation on the bone, an upper and a lower meatal flap are formed, and temporary drainage is practised through the mastoid wound.

The meatus is cut longitudinally half-way between its posterior and its superior poles from its inner extremity outwards to a point just external to the junction of the meatus and concha. At the outer extremity of this cut two others are made at right angles to it, one upwards and one downwards, both parallel to the orifice of the external cartilaginous meatus. Two flaps with long "hinges" are thus formed (*Fig.* 59), and are pushed into the osseous breach. The edges of the mastoid wound are brought together above and below. The outer edge of the upper flap is stitched into this wound as high as possible, that of the lower flap as low as possible, and a drainage tube or strip of iodoform gauze is introduced through the meatus into the antrum and out at the mastoid wound between these two flaps. This is practically Koerner's method of flap formation.

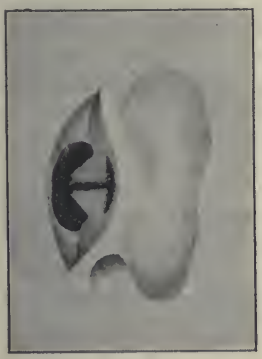

Fig. 59.

When the mastoid wound has united on the rest of its extent, and the discharge is nearly stopped, the mastoid drainage may be omitted and healing allowed to proceed.

The passage of the strip from the meatus through the mastoid wound is a detail, but one of considerable importance as regards

the patient's comfort. It is best effected by passing a thread on an aneurysm needle from the meatus backwards. The needle is withdrawn, the thread kept in position. The fresh strip of iodoform gauze is attached to the meatal end of the thread. Traction is then exercised on the mastoid end, and the gauze is pulled through.

(3,) In case of *a large cholesteatoma*, the flaps should be made as in the previous case, and so as to line the roof and floor of the large cavity, but a skin flap from the neck may be applied over its posterior wall, and a lasting mastoid opening maintained according to Siebenmann's method, which is as follows : A flap of skin behind the ear, about the size of the handle of a teaspoon, is dissected up from below upwards, and is turned into the osseous cavity. The skin at the posterior part of the surface thus laid bare is drawn forwards and stitched to the anterior lip of the mastoid wound, and union is favoured by the use of a deep wire suture with leaden plates. The outer edges of the superior and inferior meatal flaps are stitched into the mastoid wound above and below the posterior flap, and a drain is introduced. In order to favour the permanence of the opening, the skin layers on the anterior and posterior surfaces of the concha must be sutured to each other.

Prof. Passaw, of Heidelberg, has devised a most ingenious "plastic" method, for which we must refer to the original paper in the "Zeitschrift für Ohrenheilkunde," vol. xxxii, p. 207. Zaufal cuts away the posterior part of the cartilagino-membranous meatus altogether. Gruber states that if the opening closes spontaneously, it is desirable to let it do so.

In any case, it is important to practise plugging through the meatus with strips of iodoform gauze (which may be moistened) so as to keep the meatal flaps from uniting to each other instead of adhering to the walls of the osseous cavity. Granulations should gradually form on the cut surfaces of bone, and when too exuberant should be cauterised with chromic acid, silver or copper. Healing and drying are favoured by the instillation of drops of a solution of boric acid in equal parts of alcohol and distilled water, the water being gradually diminished as the parts get accustomed to the application.

* * * * *

Of the operations above described, the two most typical and of the greatest practical value are the "cortical" mastoidotomy (which may reach the antrum), and the "radical," which has been fully described as combined "antrotomy and atticotomy." The cortical is the

operation *par excellence* in acute suppuration extending from the middle ear to the mastoid spaces; the "radical" is equally demanded in chronic cases. Exceptions occur, but the rule as stated is applicable in the great majority of instances.

MEASLES. *Henry Dwight Chapin, M.D., New York.*

Dr. Henry Koplik[1] considers that his first article upon the early diagnosis of measles by the condition of the buccal mucus membrane has not received the attention it deserved. This eruption appears fully twenty-four or forty-eight or even seventy-two hours before the appearance of the exanthemata on the skin. The eruption appears on the mucous membrane lining the lips and cheeks, and consists of small irregular spots of bright red colour. In the centre of each spot is a minute bluish-white speck. These red spots, with accompanying specks of bluish-white colour are absolutely pathognomonic of beginning measles, and when seen can be relied upon as the forerunner of the skin eruption.

Dr. E. Libman[2] confirms Dr. Koplik's observations. In fifty cases of measles, the spots described were present in large numbers on the buccal mucous membrane, and in some cases on the lips.

REFERENCES.—[1] "New York Med. Rec.," vol. liii., No. 15, 1898; [2] Ibid., June 11, 1898.

W. Gilman Thompson, M.D., New York.

A. Köppen[1] investigated Bolognini's symptom in three hundred and sixteen cases. This is elicited by pressing the fingers over the patient's relaxed abdomen until one receives the impression of slight friction, which Bolognini thought was due to eruption on the peritoneum [!], but Köppen interprets it as the ordinary rumblings of a diarrhœa, the vibrations being due to air and liquid.

REFERENCES.—[1] "Centralbl. f. innere Med." 19 J. No. 26, July 2, 1898.

MENINGITIS (Alcoholic). *Græme M. Hammond, M.D., New York.*

Acute Serous Meningitis (Alcoholic Meningitis, Wet Brain).—Dana[1] reports twenty cases of this affection, all of which were carefully observed during the progress of the disease and a thorough examination of the brains made after death. The term meningitis is not, strictly speaking, correct, for the disease is not so much an inflammation as it is a toxæmia leading to congestion, then to œdema, both of the brain and the membranes, with a moderate serous effusion into the ventricles and decided disorganisation of the brain elements. But the clinical picture is strikingly like that of true meningitis.

Etiology.—It rarely develops until a person has been drinking eight or ten years. Its exciting cause is commonly alcohol, but the persistent use of morphine, cocaine, and chloral may lead to the same condition. The patients often have some tuberculosis, or sclerotic changes in the arteries, and perhaps cirrhotic liver and kidneys. The exciting cause is usually a continuous drinking-bout for two or three weeks, ending in delirium tremens.

Symptoms.—In case delirium tremens has occurred, the patient gradually sinks into a semicoma. This is accompanied by a muttering delirium accompanied by flitting delusions and hallucinations of sight and hearing. At this time he is able to drink and take food. The skin is hyperæsthetic, and pressure upon the muscles of the arms, legs, and abdomen causes pain. There is rarely headache, as in acute meningitis, and there is no explosive vomiting. Often at this time there are conjunctivitis and keratitis. The stupor becomes deeper; the arms and legs are now somewhat stiff, the reflexes are exaggerated, the neck is stiff and slightly retracted, and attempts to move the head bring out expressions of pain. There are no jerking, jumping, or convulsive movements. The abdomen is retracted; the lids are nearly closed and the pupils are small and do not react to light. The tongue is usually coated and dry, and urine and fæces may be passed involuntarily. The patient may linger in this state for several days. The coma deepens, the temperature may rise to 103° F. or 104° F., and symptoms of pneumonia may appear as the scene closes, the duration of the attack being about ten days.

On the other hand, the patient may not pass into the worst stage, but, on the contrary, improves, and in three or four weeks is convalescent.

In ten cases the blood was examined. In all of these there was a diminution of red blood cells, the average being about four million per cubic millimètre. The hæmoglobin was also diminished, the average being 70 per cent. Evidence of degeneration of the red blood cells and of poikilocytosis and leucocytosis was often noted.

Pathological Anatomy.—The meninges are congested and the dura is often thickened. The pia is thickened and opaque, and sometimes shows hæmorrhagic patches. There is considerable fluid in the subdural sac and in the subarachnoid spaces. The ventricles are found dilated and contain an excess of fluid. The brain is pale, and shows punctate hæmorrhages, especially in the deep parts and in the pons. Occasionally there are points of hæmorrhagic softening.

Microscopic examination shows there is no true inflammatory process. The common condition is an œdema of the brain tissue,

the perivascular and pericellular spaces being dilated. The nerve cells show conditions of degeneration such as are observed when they are attacked by an irritative and destructive agent. They are pigmented ; in some cases the pigment occupies more than half the body of the cell. In the pyramidal cells these deposits are usually at the base, in the region of the axis-cylinder process. In some of the spindle-shaped cells the pigment is deposited between the nucleus and the apex of the cell. The cytoplasm shows a loss of the chromophilic markings, and looks as though these bodies had been broken up into granular masses. The body of the cell sometimes looks as though it were made up of minute fatty granules. These changes are by no means uniform, and are more often seen in the cortex of the central convolutions than in the occipital and frontal lobes. The cell processes are still fairly perfect. Nothing is so striking throughout the whole brain cortex as the preservation and integrity of the nuclei and nucleoli. As the cell body degenerates and is dropped off, the nucleus becomes more and more free, and the nucleolus can be seen approaching the periphery of the nucleus.

Pathology.—Death is not caused in any great degree by direct poison from alcohol, but is due much more to exhaustion and starvation, which probably leads to the development of leucomaines or toxic products, the result of disturbed metabolism. It is probable that the injured cells, losing their vitality, throw off products of acute degeneration. These products lead to a vascular relaxation or other morbid state of the vessel walls ; serum is poured out for the purpose of carrying away the products of cell degeneration.

Prognosis.—The prognosis is bad when there is fever and when decided coma and rigidity have set in. Most cases not seriously complicated with other diseases get well. As a rule when stiff neck develops the patient will die.

TREATMENT.—Treatment should be instituted at the very beginning. If there are still any relics of the debauch, the stomach should be washed out and a purgative given. The patient should then be fed most liberally with hot milk, given every two hours ; beef tea and an egg beaten up in milk may also be given. Alcohol should not be employed, but **Strychnine** in doses of $\frac{1}{60}$ of a grain every two hours is often useful. An ice cap should be applied to the head, and at times **Leeches** or large **Blisters** applied to the nape of the neck will be found serviceable. The patient, however, should not be depleted. When he becomes comatose it means that the ventricles and arachnoid cavities are becoming filled with fluid. At this time tapping the spinal cord may be tried. In fifteen of the cases from 2 to

3 ounces of fluid were removed in this way with some amelioration of the symptoms, and never any bad results. In one case the patient improved at once and finally recovered ; in the others improvement was only temporary.

Lumbar Puncture was performed on fifty-four cases of meningitis in Lichtheim's clinic, according to Fleischmann's report.[2] In his opinion the procedure is without serious therapeutic value. Even in the so-called serous meningitis only one of the four cases who were thus operated upon showed any good results.

Numerous other cases in which lumbar puncture was performed have also been reported by Jemma, Chipault, Bull, Mya Jemma and Bruno, Wilms and Strauss. The general opinion seems to be that though this operation often furnishes positive information in regard to the form of meningitis from which the patient suffers, its therapeutic usefulness is decidedly disappointing.

REFERENCES.—[1] "Med. Rec.," Dec. 4, 1897 ; [2] "Journ. Nerv. and Ment. Dis.," Feb., 1898.

MENSTRUATION (Disorders of).

Arthur E. Giles, M.D., B.Sc., F.R.C.S.

It has long been considered that the Fallopian tubes take no part in the secretion of menstrual fluid.

Bond[1] has made some observations which lead him to regard this view as erroneous. He examined healthy tubes removed during menstruation by abdominal section undertaken for cystic ovaries and uterine fibroids.

In four such cases, in which the tubes were removed and examined on the first, third, fourth, and fifth days of the menstrual flow respectively, the contents were blood-stained mucus, while in healthy tubes removed in the intermenstrual period, the contents were either clear, or slightly opaque mucus from the admixture of epithelial cells. The secretion itself is apparently identical with menstrual fluid. To the naked eye it is a viscid purple-coloured fluid, like a mixture of mucus and venous blood.

Under the microscope it consists of red blood corpuscles and a variable quantity of leucocytes, with some epithelial cells in various stages of mucoid degeneration. The number of leucocytes varies ; in one case examined on the third day of the flow, and in which marked clinical symptoms of dysmenorrhœa had been present, the leucocytes were very numerous.

A specimen of menstrual fluid removed from the external os on the third day of the flow in a healthy person, and examined for comparison, showed the same characters as the fluid removed from the tubes.

Fliess[2] believes that there is a definite relation between the nose and the reproductive organs in females. It is stated that the inferior turbinated bones of the nose possess a corpus cavernosum, the volume of which is liable to alteration under the influence of the sphenopalatine ganglion, and this ganglion, receiving fibres from the carotid plexus through the deep petrosal nerve, is in communication with the sympathetic nervous system which influences the sexual faculty. Opposite the middle turbinated bone there is on the nasal septum a pledget-shaped elevation with numerous blood-vessels and glands, the so-called tuberculum septi. These two structures, which Fliess calls the "genital places of the nose," become swollen, cyanotic, and very sensitive at the menstrual period.

We shall refer later to the bearing of these views on the treatment of dysmenorrhœa.

Amenorrhœa.—The action of **Senecio Vulgaris** is the subject of somewhat divergent views. Fothergill[3] agrees with Murrell, that the drug can provoke menstruation in cases of functional amenorrhœa, though it will not do so in cases of marked anæmia or advanced phthisis. Bardet and Bolognesi came to a similar conclusion. Dalché and Heine,[4] on the other hand, have met with no success in this direction. We may mention that our experience coincides with that of the last-named observers. In the relief of pain, Dalché and Heine have found it effectual, as did also Murrell ; Fothergill, Bardet, and Bolognesi, found it of little or no use for this purpose.

Menorrhagia.—Sunderland[5] records three cases in which obstinate menorrhagia was markedly benefited by temporary stay in high altitudes of Switzerland : and suggests that similar benefit might be derived from some of the more elevated localities in England.

In endeavouring to explain the phenomenon, Sunderland recalls the change in the quality of the blood, which has been proved to take place during residence at high altitudes ; also the general bracing effect of high elevations on the nervous system. He thinks that possibly the diminution in the weight of the superimposed column of air on the surface of the abdomen and in the lungs may act by lessening the pressure on the internal abdominal organs and large veins, thus allowing a more free flow of blood through the large veins and portal system, and diminishing uterine congestion. He considers also that the increased respiratory movements which always occur at high altitudes should materially assist in relieving congestions of the pelvic and abdominal organs, and be of benefit in preventing uterine hæmorrhage.

For the treatment of metrorrhagia during the menopause, Orloff[6]

recommends intra-uterine injections of **Alumnol** and **Tincture of Iodine.** After a vaginal irrigation with a $\frac{5}{10}$ per cent. solution of bichloride and cleansing of the orifice with a 5 per cent. carbolic tampon, he inserts a cannula into the uterus, and through this injects slowly a solution of alumnol and tincture of iodine (alumnol, 2·5; tincture of iodine, 25; absolute alcohol, 25), by means of an intra-uterine syringe. At the beginning, injections are undertaken daily; later, every second day.

Dysmenorrhœa.—There is no finality in the views that are held as to the etiology of dysmenorrhœa. On the one hand, there is the view that hysteria is the preponderating factor. Vedeler,[7] for instance, thinks that too much has been made of the local (uterine, ovarian, and tubal) causes of dysmenorrhœa, and believes that it is most often a symptom of hysteria. Accordingly, he sends his cases to a spa, and gives, as medicines, **Ergotin** and **Bromide of Sodium.** If the pain is not strictly confined to the lower part of the abdomen, he gives the latter drug (1 gr. twice daily) during the intermenstrual period. In more inveterate cases recourse is had to **Electricity,** but only to its action by suggestion. In the worst cases of all, **Hypnotism** may be tried or operation, but with regard to the latter, he thinks the results of forced dilatation are not encouraging.

Maddox[8] thinks that sooner or later there is a neurotic element in all cases of dysmenorrhœa; and his treatment, where there are no pelvic lesions, consists in the administration of **Apiolin Capsules,** given at the menstrual periods, beginning three days before the period is due. One capsule three times a day usually suffices.

The "mechanical" view of uterine dysmenorrhœa was emphasised in a discussion at the British Gynæcological Society[9] in June and July, 1898. Most of the speakers advocated some form of dilatation, either gradual or rapid. Skene Keith and others had found Dudley's operation useful in the case of stenosis associated with anteflexion.

Fliess bases his treatment of dysmenorrhœa on his views of the relation of the nasal mucous membrane to the pelvic organs. That form of dysmenorrhœa in which the pain continues after the commencement of the menstrual flow disappears at once if the two "genital places" of the nose are rendered insensible by a 20 per cent. solution of **Cocaine.** When an anæsthetic is applied to these places in only one nostril, the pains disappear on only one side of the body; anæsthetisation of the inferior turbinated bones removes the abdominal pains in from five to seven minutes. By cauterising these places with **Trichloracetic Acid,** dysmenorrhœa may be averted for a long time.

An old remedy for dysmenorrhœa has been revived by O'Donovan[10] and A. H. Smith,[11] who strongly recommend **Manganese Dioxide**, 1 to 3 grains three times a day. Both admit, however, that it cannot invariably be depended upon.

Intermenstrual Pain.—Addinsell[12] gave an account of four cases of this condition before the Obstetrical Society of London. He regarded it as due to a painful effort on the part of a diseased tube to expel its contents. Herman attributed it to recurring painful ovulation; Routh suggested that the assumption of an intermenstrual monthly cycle would explain it. Heywood Smith, and Giles thought that an intermittent hydrosalpinx might cause these symptoms; Bland Sutton, and Cullingworth, however, were not convinced that such a condition existed. (See also "Uterus, Disorders of).

REFERENCES.—[1] "Brit. Med. Journ.," June 4, 1898; [2] "Cent. f. Gyn.," No. 4, 1897; [3] "Med. Chron.," Sept., 1897; [4] "Les Nouv. Remèd.," No. 23, 1896; [5] "Journ. of Balneology," Jan., 1898; [6] "Klin. Therap. Woch.," No. 7, 1898; [7] "Norsk. Mag. f. Lägevidensk.," Oct., 1897; [8] "Med. and Surg. Reporter," June 5, 1897; [9] "Brit. Med. Journ.," July 2 and 30, 1898; [10] "Med. News," Nov. 27, 1897; [11] "Georgia Journ. of Med. and Surg.," Jan., 1898; [12] "Brit. Med. Journ.," March 12, 1898.

MOLLUSCUM CONTAGIOSUM. *T. Colcott Fox, M.B.*

Samuel G. Shattock[1] has recalled attention to the occurrence of this disease in birds, and this is probably an occasional source of the disease in human beings. He has observed it in bunting sparrows, the common sparrow, and the pheasant, but it is in domesticated birds that the disease has been most frequently observed, and it is a fairly common one amongst fowls, turkeys, and pigeons.

The growths are located chiefly on the head, the comb, wattle, margin of the nose, eyelids, and auditory meatus, more rarely on abdomen and legs. Colcott Fox gives an illustration of it on the legs in the same publication, and states that specimens of so-called "yaws" in fowls from the West Indies proved to be molluscum contagiosum. Jonathan Hutchinson[2] records a case in a young woman and also her dog.

REFERENCES.—[1] "Path. Soc. Trans.," vol. xlix, 1898; [2] "Clin. Journ.," March 13, 1895.

MULTIPLE NEURITIS. (See "Neuritis.")

MULTIPLE SCLEROSIS. (See "Sclerosis.")

MYCOSIS OF LARYNX. (See "Larynx, Disorders of.")

MYOPIA. (See "Vision, Disorders of.")

MYXŒDEMA. *Græme M. Hammond, M.D., New York.*

Marié and Jolly[1] report a case of myxœdema of several years' duration, in a woman fifty-four years old. She was treated with **Iodothyrin**; 30 centigrammes were given three or four times daily. Though the patient presented marked cardiac dyspnœa and a little albuminuria, recovery was complete in six weeks.

REFERENCE.—[1] "Amer. Journ. Med. Sci.," July 15, 1897.

NÆVUS. *T. Colcott Fox, M.B.*

Nævus Linearis.—Prince A. Morrow[1] publishes two cases of linear papillary "nævus," with remarks on its nature and nomenclature.

In its ancient sense the term *nævus*, he says, was applied to birth-marks due to antenatal influence; but its significance has been enlarged, not only in respect to the structures which enter into its composition, but also the mode and date of its development. Instead of being restricted to vascular and pigmentary changes, it is now recognised that *nævus* includes hypertrophies of the corneous and papillary layers, hyperplasms of the connective and fibrous tissues, resulting in various "moles" and tumour formations, alterations in the glandular apparatus of the skin, in which category enter adenoma, cystadenoma, and other benign tumours. To this list, hypertrophy of pigment may be added. "While nævi are congenital in respect to their being due to some anatomic or embryonic peculiarity, their superficial development may not take place until the period of puberty or later."

By the old writers, the linear papillary nævus was regarded as a localised ichthyosis, but ichthyosis is a generalised cutaneous malformation, fixed, unchangeable, symmetrical, and different in its anatomical characters. The dystrophy under consideration has four main characteristics :—

(1,) *A linear disposition* in streaks or bands, parallel or radiating, or branched, following the long axis of a limb or around the trunk.

(2,) *A unilateral distribution*, generally accurately delimited.

(3,) *A papillary or verrucose character.*

(4,) *A congenital origin*, commonly present at birth or manifest in the earlier months of life, but sometimes appearing later. (See *Plate XI.*)

Sensory disturbances may be marked, and the affection may progress in extent, remain stationary, retrogress, or undergo various degenerative changes.

Those who support the theory of a nervous origin point to the correspondence and causal connection with definite tracts of the

PLATE XI.

T. Colcott Fox's case of Linear Papillary Nævus.

superficial or deep nerves, but this does not hold good in more than half the cases. In other instances the eruption has been held to correspond in distribution with Voigt's boundary lines, *i.e.*, the lines of partition between the different nerve areas of the skin. Of late the doctrine of *metamerism* has been called into requisition.

Etienne,[2] in an essay on the pathogenesis and etiology of nævi and their relation to nerve areas, points out that the only apparent connection of this congenital disturbance in the embryological development of the skin is with the nervous system. The lesions cannot be referred to the branchial clefts, nor to the normal cutaneous vascular distribution, nor to the lymphatics.

Etienne, as an explanation for many cases, favours the hypothesis of an intra-uterine peripheral neuritis, dependent possibly on some slight infectious illness in the mother, or on some fœtal toxæmia. For other cases he suggests an intra-uterine myelitis, slight and localised, or transverse and involving a cord segment, or the metameric theory.

REFERENCES.—[1] "New York Med. Journ.," Jan. 1, 1898; [2] "Nouvelle Iconographie de la Sâlpetrière," 1897.

NERVES (Surgery of the). *William Thorburn, F.R.C.S.*

Operative treatment for the relief of neuralgia is a thoroughly established surgical procedure, of which details alone call for improvement. At the present time, interest is excited mainly by the intra-cranial treatment of trigeminal neuralgia, and by the intra-dural section of spinal nerve roots.

Tiffany[1] has collected a very large number (108) of cases of excision of the Gasserian ganglion, the majority having been performed by the Hartley-Krause method, and nearly all of the remainder by Rose's operation. The mortality amounts to 22·2 per cent. After complete removal pain does not recur; partial removal, or removal of branches, may be followed by return of pain, but is often curative. Removal of the first division or upper part of the ganglion is generally followed by trophic lesions of the eye, and this division is rarely, if ever, the seat of the original neuralgia. Hence the best and safest operation is the removal of the lower two-thirds of the ganglion with the origins of its second and third divisions.

Abbe,[2] who was one of the first to advocate the intra-dural section of the posterior spinal roots for intractable neuralgia, describes the results of three operations of his own and seven other recorded cases. The operation is comparatively easy and free from risk, but the evidence of permanent relief is unsatisfactory. Clussault[3] reports a case in which cure has persisted for two years.

Delorme[4] advocates the use of great pressure or pinching for the cure of painful cicatrices, and reports ten cases in which he claims to have obtained good results. The affected region is tightly pinched between the finger and thumb of the operator, throughout the whole hyperæsthetic area, after which pain ceases, and even old-standing trophic lesions recover.

REFERENCES. —[1] "Annals of Surg.," Nov., 1896; [2] "Boston Med. and Surg. Journ.," Oct. 1, 1896; [3] "Med. Press and Circ.," Jan. 27, 1897; [4] "Journ. de méd.," June 25, 1897.

NEURALGIA. (See "Tic Douloureux.")

NEURALGIA (Ocular). *William Oliver Moore, M.D., New York.*

Norbury[1] recommends for pain along the eye, not associated with any inflammatory condition of the organ, the following as a counter-irritant: **Menthol,** 30 grains; **Spirits of Rosemary, Lavender,** and **Brandy,** each 1 ounce, to bathe the forehead and temples briskly.

REFERENCE.—[1] "Med. Fortnightly," Jan. 1, 1898.

NEURASTHENIA. *Græme M. Hammond, M.D., New York.*

Wiederhold[1] believes the cause of neurasthenia lies in deficient metabolism in the nervous system, slow blood changes and venous stasis, brought about through insufficient respiration and weak heart function. As a result, there is oxygen hunger of the tissues of the nervous system which should be combatted by direct oxygen inhalations. Especially in pale, obese neurasthenics have good results been obtained. The mouth is disinfected, so that *fœtor ex ore* and coated tongue disappear, and the senses of taste and smell improve.

Apostoli[2] considers that electricity, properly used, may be accepted as the routine treatment for this affection, the particular variety to be employed varying with the subject.

Local applications, especially at the beginning of the attack, are, as a rule, inferior to general electrisation, such as **Static Baths,** or baths from alternating currents of great rapidity. The more neurasthenia is complicated by peripheral nervous disorders, such as hysterical hemi-anæsthesia, the stronger is the indication for the form of electricity whose peripheral localisation gives the highest tension. In such a case static electricity is required, while in arthritic forms, or where the general nutrition is obviously deranged, currents of high frequency should be employed. Hysterical anæsthesia may yield to the simple static bath, but more often requires the application of sparks along the spine. Hysterical hyperæsthesia is best treated with very mild static electrical baths, no sparks being used. The anæsthetic patients are little, if at all, helped by currents of high frequency, and derive no

benefit from auto-induction by the large solenoid. The arthritic patients, on the other hand, are greatly improved by the rapidly alternating currents. Galvanism and faradism are of little use in the treatment of this affection.

D'Aulnay[3] claims the most efficacious method of treating the insomnia of neurasthenia is by the **Wet Pack.** In mild cases he advises either a tepid bath of forty minutes' duration given each evening before bed time, or a local bath by means of hot water poultices applied to the chest and abdomen. In some cases in which drugs had absolutely failed, sleep was secured by enveloping the body in flannel bandages wrung out of tepid water. Three or four flannel bandages, about six inches wide and sixteen feet long, are rolled up separately and soaked for five minutes in water at a temperature of about 95° F. They are then wrung out thoroughly. With one of them a turn is taken around the neck, thence passing from the front under one axilla, and from behind over the opposite shoulder, thence under the axilla from the front, and thence over the shoulder of the opposite side, thus forming a double spica bandage. Other bands are then wound around the trunk, each turn covering half of the turn above it, and is finished off with a loose spica around the thighs and pelvis. It is important not to have the bands tight at the arms and thighs, but around the trunk to have them sufficiently tight to prevent slipping. Over this a flannel shirt is worn. A closely fitting woollen garment or wrap, wrung out in tepid water, may be worn instead of the bandage. This application should be continued for three or four hours for the first three or four nights ; then during the greater part or the whole of the following nights for months if necessary. The general effect of this method is to relieve the feeling of fatigue ; it causes an agreeable feeling of warmth and of well-being which spreads from the skin to the whole organism ; relaxes the skin and the muscles, and almost infallibly produces sleep.

Erben[4] describes a pulse phenomenon in neurasthenia, which has thus far not been mentioned. If the patient bends forward or makes an attempt to sit down, a distinct and easily appreciable slowing of the pulse takes place which, however, returns to normal in a very short time, whether the patient resumes the erect position or not. Even neurasthenics with tachycardia show this phenomenon, while healthy individuals do not. Erben attributes it to vagus irritation.

REFERENCES.—[1] "Amer. Journ. of Med. Sci.," March, 1898; [2] "Brit. Med. Journ.," April, 1897 ; [3] "Treatment," Nov. 11, 1897 ; [4] "Med. Rec.," Oct. 15, 1898.

NEURITIS (Multiple). *Græme M. Hammond, M.D., New York.*

Regmir[1] speaks highly of the value of the **Alternating Lighting Electrical Current** in the treatment of multiple neuritis. It should not be used until about the end of the first month of the course of the disease. An electromotive force of from six to twelve volts was employed. One electrode having a superficial area of 150 square centimètres was placed upon the patient's back, while the active electrode being represented by a roller, 5 centimètres long by 3 centimètres in diameter, was applied to the course of each motor nerve and muscle affected for about two minutes at each point.

His conclusions are as follows : (1,) That the alternating current from a central lighting station is well borne by the patient, provided the operator has at his disposal suitable rheostats ; (2,) Less pain is caused by this method than by the use of strong faradic currents which cannot be given with an electromotive force of ten or twelve volts ; (3,) The mechanical effect is equally energetic but less severe than that of faradic currents.

REFERENCE.—[1] "Treatment," Nov. 10, 1897.

NEURITIS (Optic). (See "Retina, Diseases of.")

NOSE (Diseases of). *R. Lake, F.R.C.S.*

Abscess of the Septum.—Gougenheim[1] says this is rarely observed if inflammatory in origin. This would be true did not he attribute its origin to traumatism. And the rareness of the affection is probably due to the fact that the affection is so simple as a rule that it is not reported. The abcess is usually bilateral and of rapid development. It should be freely incised, and treated with antiseptic washes.

Foreign Bodies.—These are most usual in childhood, and when they are found later can usually be traced to that epoch. Even when rhinoliths are found without obvious nucleus it is doubtful whether they are ever formed entirely in the nose, that is to say, whether the nucleus was not either altered in structure or lost.

A novel method of expelling recently introduced foreign bodies is described by Bieser.[2] The child is held in the intubation position, the mouth is closed with the hand, and a rubber tube, one end held in the operator's mouth, is inserted in the *free* nostril. A sharp vigorous blow will now eject the foreign body.

As examples of the length of time these may lie *perdu* in the nose may be quoted a case by Carruthers,[3] who removed a stone which had been in the nose for twenty-three years. And another by Hills,[4] where the duration of time was twenty-five years ; in this case a most unusual amount of disturbance was set up, partly obstructive, as epi-

phora, partly local, as epistaxis, and some reflex, one-sided deafness and tinnitus, also severe daily headache. The mass was so large that it required crushing with a lithotrite before it could be removed. This was due to the large deposit of earthy salts round the nucleus. This deposit will be frequently found on bodies only resident a few months in the nose.

Correction of Deformities.— Roe[5] thus classifies deformities : (*a*,) Vertical, or distortions of the dorsal profile ; (*b*,) Lateral. These were again subdivided either under bony or cartilaginous, etc.

He gives three conditions as necessary to ensure success : (1,) Thorough antisepsis ; (2), Fullest utilisation of materials ; (3,) Very careful attention to after treatment, as changing of splints, etc.

Fractures of the Nasal Bones and Old Depressed Fractures. —Annandale[6] makes use of an ingenious splint and pin (*Fig.* 60) in these conditions. In the former instance, after having replaced the bone by means of forceps, in the latter, after having exposed the anterior nares by turning up the upper lip, and dividing the mucous membrane, then inserting a small pair of bone forceps, he separates the nasal bones from their connection with the superior maxilla, or even divides the nasal process of that bone, in order to obtain a firmer nasal support, then treating it as a recent fracture.

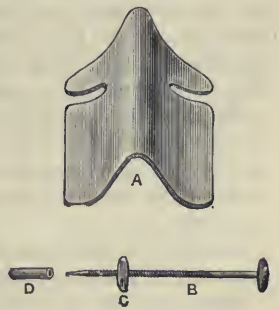

Fig. 60.

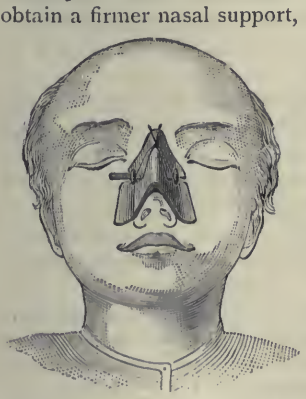
Fig. 61.

The splint or sling consists of the sling and a pin. The sling (*A*) is made of sheet lead formed into an arch, with a ledge on either side to rest upon the cheek. This arch should rise higher than the nasal bones when in position. The notches are for the pin. The pin made of steel, has a fixed head at one end, the other is sharply pointed ; two-thirds of the pin from the sharpened end consists of a fine screw (*B*), on which runs a nut (*C*). A cap (*D*) fits on the sharp point to protect the cheek. *Fig.* 61 shows the apparatus in position.

Nasal Reflexes : Trigeminal Neuralgia.—A severe case of this dis-

turbance was cured by Spencer,[7] by removal of the middle turbinate on the same side. The left nostril was so hyperæsthetic that administration of morphia was necessary to admit of an examination. It was found that the anterior extremity of the middle turbinate was very sensitive and on being touched an acute spasm of neuralgia was produced. The bones were removed and the patient thereby cured.

The ocular symptoms are divisible into three groups, according to Stiel[8]: (1,) Reflex disease of the eye due to nasal disease, viz., teardrop photophobia and asthenopia; (2,) Direct extension of disease, or from the occlusion of the orifice of the nasal duct, viz., dacry-cyclostenosis; (3,) Influence of accessory sinus disease, viz., orbital abscess.

Turbinotomy.—Myles[9] observes, that where the septum is straight, the vestibule large, and the fossæ roomy, the turbinate bone should never be removed; but when the turbinates are hard and extend downwards, and especially in gouty and rheumatic patients, this operation gives almost magical relief.

MacDonald[10] is of opinion that the operation may be demanded for relief of obstruction to respiration, relief of various neuroses, and troublesome and uncommon cases of catarrh. Delavan is of the opinion that the results obtained could be derived from less radical measures.

Semon[11] has seen bad results follow this procedure, and is not impressed with the advisability of its performance.

These are only a few out of numerous communications to the medical press on this subject, but they are amongst those on which, on account of the repute of the writers, we should place reliance, though there is a great divergence of opinion on the subject, and it must be admitted, the question is not yet settled.

Serious Sequelæ.—The contention of many that this operation was not free from danger is demonstrated by the following report by Wurdemann.[12] A patient had been relieved of his inferior turbinate by another practitioner; a few days later he was brought to Wurdemann, with extensive suppurative inflammation, so acute, that his life was in grave danger. It was necessary to open all the accessory sinuses in order to save the patient. It appears that the first operator neglected to use any antiseptic precautions.

TREATMENT.—**Sozoiodol** in the treatment of chronic affections of the nose and laryngo-pharynx, is employed with beneficial results by Morcinowski.[13] He insufflates the nasal cavities with a mixture of **Sozoiodolate of Zinc, Menthol** and **Boric Acid.**

Nasal Irrigation.—Borgengrün[14] gives some instructions for the efficient and safe carrying out of this procedure: (1,) In very young

children it must only be done by an experienced hand ; (2,) The injection must not be done forcibly, nor must the nose be blown for half an hour afterwards ; (3,) Any sensation in the ear is an indication to cease the injection ; (4,) Frequent pauses are necessary ; (5,) The fluid must be neither too warm nor too cold ; (6,) Neither alum nor carbolic acid must be used. The author omits a most important axiom, viz., the injection should always be practised up the narrower nostril, and along the floor of the nose.

Lichtwitz[15] depreciates the routine prescription of the douche, and says it should only be used for the removal of crusts. Repeated floodings of the nasal mucosa give rise to olfactory lesions, antiseptics are injurious, and the only drugs to be employed are **Sodii Bicarb., Chlor. and Sulph.**

Eucaine.—In our last issue we referred to this drug as a local anæsthetic. (See also section "New Remedies," p. 35, in present volume.)

Horne and Yearsley[16] have given the results of some very exhaustive investigations. In the case of intra-nasal application a piece of wool soaked in a 10 per cent. solution is placed in the nose for ten minutes. Salivation is not produced unless the tissues are inflamed, thus differing from cocaine, and also having an advantage over it. These authorities concur with their predecessors in agreeing as to the absence of unpleasant and dangerous after effects. **Holocaine** is another local anæsthetic, closely resembling the foregoing.

Aqueous Extract of Supra-Renal Capsule.—Mullen[17] recommends an aqueous solution of 5 grains of the fresh gland to a drachm of water, in conjunction with a 5 per cent. solution of cocaine, as an analgesic and hæmostatic in intra-nasal surgery. He anæsthetises the part by a cataphoretic application of the cocaine first and the suprarenal extract after. According to the writer, the secondary as well as primary hæmorrhage are quite abolished. And as is well known one of the chief troubles in turbinotomy is the tendency to secondary hæmorrhage.

(See also "Rhinitis, Atrophic" ; "Membranous Rhinitis" under "Rhinitis" ; and "Sinusitis."

REFERENCES.—[1]"Arch. f. Laryng.," Band v. ; [2]"Pediatrics," July 15, 1897 ; [3]"Brit. Med. Journ.," Feb. 12, 1898 ; [4]"Laryngoscope," July, 1898 ; [5]"Brit. Med. Journ.," Nov. 13, 1897 ; [6]"Brit. Med. Journ.," Dec. 4, 1897 ; [7]"Journ. Laryng.," 1898 ; [8]"Internat. Cent. f. Laryng.," No. vi., 1898 ; [9]"Journ. Laryng.," Dec., 1897 ; [10]"Brit. Med. Journ.," Nov. 12, 1897 ; [11]"Journ. Laryng.," July, 1897 ; [12]"Ann. Otol. Rhin. and Laryng.," Aug., 1897 ; [13]"Aerztl. Rundsch.," vol. vii., No. 29 ;

[14] "Med. Times and Hosp. Gaz.," Sept. 25, 1897; [15] "Sem. méd.," Nov. 29, 1897; [16] "Brit. Med. Journ.," Nov. 27, 1897; [17] "Internat. Clinics," vol. iv, series 7.

NOSE (Syphilis of). (See "Syphilis of Nose and Throat.")

ŒDEMA OF THE LUNG. *F. de Havilland Hall, M.D., F.R.C.P.*

According to Huchard [1] acute pulmonary œdema is associated with great dilatation of the right ventricle, feebleness of the heart muscle, and high tension in the pulmonary artery; there is also usually disturbance of the cardio-pulmonary innervation, and in many cases interstitial nephritis is the prime cause. In the violent form death may occur in a few minutes, but in the subacute variety there may be several attacks before the fatal one. In order to relieve the right ventricle general **Venesection** may be employed, or blood may be removed by **Cupping** over the hepatic or lumbar regions. For sudden cardiac failure Huchard recommends hypodermic injections of **Caffeine** or **Comphorated Oil**; the latter is prepared according to the following formula:—

℞ Sterilised Olive Oil ℥iss | Camphor ℥ijss
Inject 3 or 4 hypodermic syringefuls a day.

The injections are not painful. In the absence of these remedies, **Ether** may be injected. **Strychnine** administered subcutaneously is a most valuable remedy for combating the disordered innervation of the cardio-pulmonary system.

Atropine has also been found to answer well. After the subsidence of the graver symptoms, Huchard, for the purpose of producing diuresis, orders an exclusive milk diet and gives full doses of **Theobromine.**

REFERENCE.—[1] "Therap. Gaz.," Oct. 15, 1897.

ŒSOPHAGUS (Pressure Pouches of). *Priestley Leech, M.D., F.R.C.S.*

Cases of this abnormality must be more frequent than is generally supposed.

Butlin[1] has seen six patients suffering from the symptoms of this affection, and in three cases the pouch was removed, thus placing the diagnosis beyond a doubt. The symptoms of this condition are not generally known, and are often mistaken for pouching of the œsophagus above a stricture. In two cases gastrostomy was performed under the impression that the patients were suffering from stricture, and the real nature of the condition was only discovered after the death of the patients.

The true pressure pouch of the œsophagus is practically always situated at the back of the junction of the pharynx, with the œsophagus,

and it opens into the gullet by a longitudinal opening in the middle line, about an inch in length.

It is more frequent in males: all Butlin's patients were men, and the youngest was forty-five years old; the symptoms of the pouch were first noticed after forty years of age.

The symptoms are: (1,) Return of fragments of undigested food, not immediately after the food has been taken, but many hours afterwards. This is the one constant symptom in every case. In more than one case the fragments which were returned were at once recognised by the patient as portions of food taken several meals previously. The fragments may be coughed up or choked up, and sometimes liquids taken at night will run out and make the patient cough when he changes his position during the night; (2,) Pressure in the side of the neck in the posterior triangle (usually on the left side) causes fragments of food and liquid to return into the mouth; and if not, yet causes the escape of gas, which is developed and collects in the pouch and occasions much annoyance by gurgling up at frequent intervals, during movement of the head and neck. The pouch may cause bulging in the posterior triangle, about the level of, or below the cricoid cartilage; (3,) A bougie is arrested at a distance of about nine inches from the mouth. It may pass onwards into the stomach but usually passes into the pouch. If the bougie is of metal, and slightly curved, its end may be made to project so that it can be felt and seen in the side of the neck (almost always the left side) behind the sterno-mastoid; (4,) Wasting and loss of weight are rarely, if ever observed, until the late stages of the disease. The course of the disease is slow, and the symptoms have been noticed for years. In the cases operated on, relief has been complete and permanent.

REFERENCES.—"Brit. Med. Journ.," Jan. 1, 1898; other references "Lancet," vol. i. Jan. 3, 1891, and "Path. Trans.," vol. xlii, p. 82, 1891.

OPHIASIS. (See "Alopecia Areata.")

OPHTHALMIA NEONATORUM. (See "Conjunctiva, Diseases of.")

OTITIS.—(See "Ear, Diseases of.")

OTORRHŒA.—(See "Ear, Diseases of.")

OZÆNA. (See "Rhinitis.")

PARALYSIS. *Græme M. Hammond, M.D., New York.*

Hemiplegia.—Dignat,[1] in speaking of the **Electrical Treatment** of this condition, arrives at the following conclusions: (1,) In no case should electrical treatment be begun for several days subsequent to the attack; (2,) At about the end of the third week, faradisation of

the affected muscles should be practised for two or three weeks; (3,) Then the constant current should be applied along the vertebral region. From four to five ma. should be used at first, gradually increased during the course of treatment to fifteen ma., but never higher, and the duration of a séance from ten to fifteen minutes, changing the poles once or twice during each application; (4,) If the patient shows appreciable evidence of improvement after several days of this treatment, and nothing points to a secondary degeneration, it may be discontinued entirely. However, it is advisable to keep the case under observation, applying static electricity from time to time in order to keep up the general nutrition, and especially to ward off any functional disorder; (5,) In case of permanent secondary contractures, the galvanic current should be used for a long time; (6,) No electrical treatment should be prescribed for patients in whom the development of focal epilepsy is apprehended.

Fisher[2] believes the contractures and rigidity of the muscles can be diminished by **Massage** and **Electricity.** He thinks that only the galvanic current should be used, as faradism often stimulates or irritates the muscles to increased contractures. He also considers **Hydrotherapy** useful.

REFERENCES.—[1] "Journ. Nerv. and Ment. Dis.," Aug., 1898; [2] "Med. Rec.," Feb. 26, 1898.

PARALYSIS (Infantile and Spastic). (Tendon Transplantation and Arthrodesis.) *Robert Jones, F.R.C.S., Ed.*
A. H. Tubby, M.S.Lond., F.R.C.S.

The Surgical Treatment of Infantile Paralysis.—The scope of this article is to discuss the measures that may be adopted for deformities of the limbs resulting from infantile paralysis, in which simple tenotomy does not suffice to place and keep the parts in good position. The object of surgical measures which have recently been introduced is not only to overcome the deformity, but to render the patient as far as possible independent of the instrument-maker. It is quite true that many of these cases can be treated by tenotomy and instruments, but in tendon-transplantation and in arthrodesis we have means which are steps in advance, and tend towards the desired object of giving a firm and useful limb without the aid of cumbersome and weighty instruments.

Now infantile paralysis has this special characteristic that it has a selective action upon the muscles. Not only does it pick out individual fibres of a muscle, but also affects one muscle in a group or one whole group of muscles, or it may leave intact one muscle alone in the whole limb: for instance, in those dis-

tressing cases of total paralysis of the limb in which the psoas alone escapes.

Tendon-grafting. — By this is meant the reinforcement of a paralysed muscle by attaching to its tendon the tendon of a healthy muscle; the means of attachment are various, and will be alluded to presently. Other names by which tendon-grafting has been known are muscle-grafting, function transference of muscle, and tendon-transplantation, but the word tendon-grafting sufficiently indicates the scope of the procedure. The operation originated with Nicoladoni in 1882, who, in a case of paralytic talipes calcaneus, attached both peronei to the tendo Achillis with a good result. In 1892 Parrish[1] and Drobnik[2] applied the same method to other forms of club-foot. In 1894 Winkelmann grafted a strip of the tendo Achillis on to the paralysed peronei. Drobnik, according to Mr. Eve's article in "Brit. Med. Journ.," Oct. 15, 1898, was the first to publish and analyse a series of cases, sixteen in all. Since then Goldthwaite has done good work on the subject, and Mr. Eve records four cases on which he himself had operated. We have ourselves done fourteen cases in all.

Before deciding to perform tendon-grafting, there are certain points to be observed, and certain precautions to be taken: (1,) The muscles should be carefully tested electrically, and the relative strength of each of them determined; (2,) All conditions due to the contraction of the plantar fascia, such as pes cavus, should be previously removed by operation; (3,) The operation is rarely called for when one muscle only is partially paralysed; (4,) Cases in which all the muscles are paralysed and a flail-like joint exists, are not suitable for tendon-grafting. For such cases arthrodesis should be reserved; (5,) In selecting a healthy muscle for reinforcing a paralysed muscle it is advisable that the one selected should belong to the same group, if possible, as the paralysed one. The reasons being that it is nearest, and restoration of voluntary function is more quickly and more perfectly secured; (6,) If it is not possible to attain a reinforcing muscle from the same group, the selection should be made from a muscle the line of which is as nearly coincident as possible with that of the paralysed muscle. For instance, in reinforcing the tendo Achillis for talipes calcaneus, the peroneus longus and brevis may be used. In reinforcing the tibialis anticus for paralytic valgus, either the extensor proprius pollicis or part of the extensor communis digitorum may be used; (7,) The reinforcing tendon should be carried as directly as possible to the paralysed muscle, and not bent round at an angle, which has the effect of considerably lessening

the transfer of power. For instance, if the peroneus brevis were used to reinforce the extensor communis digitorum, the former should be attached to the latter above the ankle, and not in front of the external malleolus.

Bearing these points in mind, we will now proceed to discuss individual examples of paralytic talipes in which the operation is applicable. So far, the form which has given the best results has been the treatment of talipes calcaneus by grafting the peroneus longus and brevis to the tendo Achillis. The value of this form of operation resides in the fact that almost all attempts to shorten an unduly lengthened tendo Achillis result in failure except by this new method of grafting. Cases of talipes equinus will not, as a rule, call for muscle-grafting, because simple division of the tendo Achillis suffices to overcome the deformity. Cases of paralytic valgus due to paralysis of the tibialis anticus and posticus may be treated in one of the following ways: The tendon of the extensor proprius pollicis may be split, and part of it attached to the tibialis anticus. Similarly, a piece of the flexor longus digitorum may be attached to the tibialis posticus. Or, in place of the latter, a strip may be split off from the tendo Achillis with some muscular fibres of the gastrocnemius attached, and used to reinforce the tibialis posticus. Or, still further, the peroneus longus may be brought across the front of the extensor tendon sheaths and be stitched to the tibialis anticus. The employment of the peroneus longus in this connection emphasises this point, that by selecting one of the opponents of a paralysed muscle, we not only reinforce that muscle but we weaken the antagonism which exists between the two groups, since by transferring, as in this case, the insertion of the peroneus longus from the outer to the inner border of the foot, we tend to equalise the forces acting upon those two borders. Cases of paralytic varus due to paralysis of the peronei may be treated in the following way: The peroneus longus tendon may be reinforced by a strip of the tendo Achillis and the peroneus brevis by a strip from the peroneus tertius or one of the outermost parts of the extensor communis digitorum. In the compound forms of paralysis considerable ingenuity can be exercised in determining which muscles shall be used as the graft. Taking a case of paralytic calcaneo-valgus, the peroneus longus may be used to reinforce the tendo Achillis, and a strip of the extensor proprius pollicis to reinforce the tibialis anticus, and a strip of the flexor longus digitorum to reinforce the tibialis posticus. In paralytic equino-varus we have adopted the following plan: A long incision is made on the posterior aspect of the leg and at its outer part. The tendo Achillis is split

lengthwise as far as the point where the two heads of the gastrocnemius meet. The outer strip so made is attached to the dista part of the divided peroneus longus, and the remaining portion of the tendo Achillis is divided with a tenotome. The foot comes at once into position, and the result is extremely good (*Figs.* 62 and 63).

Fig. 62.—Paralytic Talipes Equino Varus, in the right foot.

Fig. 63.—The right foot in *Fig.* 62 after treatment by tendon-grafting. A strip of the tendo Achillis was transferred to the peroneus longus, and the rest of the tendo Achillis divided.

As to the actual mode of procedure, the operation is one which requires that the parts should be absolutely aseptic, inasmuch as its success or failure depends upon healing by primary union. The tendons to be operated upon are exposed, and their sheath freely opened in such a way that the tendon of the reinforcing muscle can be applied easily to the paralysed muscle. Taking, *e.g.*, the fixing of the peroneus longus to the tendo Achillis, the sheaths of the peronei and of the tendo Achillis are freely opened up, and a considerable length of the peroneus longus is detached. The peroneus longus tendon is then cut across just above the malleoli, and passed to the under-surface of the tendo Achillis nearly opposite the ankle-joint, the tendo Achillis having been previously split longitudinally at this spot; the proximal end of the peroneus longus tendon is drawn through it and split somewhat, and attached to the posterior surface of the tendo Achillis by being sewn down with silk or some other

material. A word as to the suture to be used in stitching tendons together in this way. We have always found that the best material is twisted silk freshly boiled and freshly sterilised. These little points are most important. In our opinion silk is undoubtedly the best material, as it is absorbed fairly quickly, but not too quickly; it is not too bulky, and if properly sterilised gives rise to no suppuration whatever. Other surgeons have employed kangaroo tendon, but since it is found quite impossible to adequately sterilise this substance, suppuration has followed. Others prefer catgut, but we adhere firmly to the silk. It is not always necessary to pass the reinforcing tendon through the paralysed tendon, but it may be attached alongside it, both edges being freshened for that purpose.

One other point deserves consideration in this operation; and that is, that the proximal part of the tendon of the reinforcing muscle should be pulled quite tightly, and should be inserted at such a spot to the tendon of the paralysed muscle that the former, when it is fixed, is at its utmost possible tension. After the operation, the limb is put up into the position in which it is desired it should remain subsequently.

So much for tendon-grafting in the case of talipes. It has other possibilities. In cases of paralysis of the extensors of the knee, the sartorius frequently escapes. Its tendon may be detached in the lower part of the thigh, and its proximal end fixed to the upper part of the patella. It then acts as an extensor of the thigh. Similar operations may be performed in cases of paralysis of the wrist.

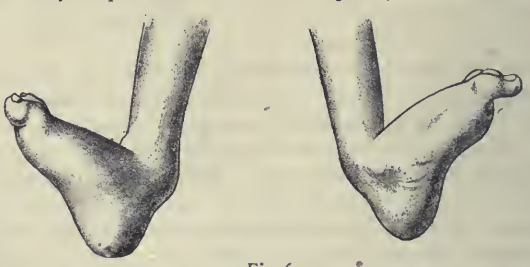

Fig. 64.

Arthrodesis.—By this is meant the formation of ankylosis in a flail-like joint due to infantile paralysis (*Figs.* 64 and 65). It has been employed in the knee and in the ankle, but, in our opinion, finds its best use in the latter joint. The method is as follows: The limb having been duly asepticised, the ankle joint is opened; some prefer to do so in front, and others by a horse-shoe shaped flap behind, shortening the tendo Achillis at the same time. All cartilage and synovial mem-

brane are very carefully removed, the bone is stippled and gouged to make a rough surface, the parts sewn up and allowed to heal in good position. We have found it is rare to obtain bony ankylosis, but we have frequently succeeded in obtaining what is still more desirable, very close fibrous ankylosis with a range of movement of 5 to 10 degrees in the ankle. The result of this is that the patient has a firm joint where before he had a useless one, which could only be controlled by elaborate instruments. For the ankle, we think that in almost all cases, except when inveterate calcaneus is present, the anterior method should be employed. The tendons should have sutures placed through them in two places—one above, and one below the subsequent line of division. They, *i.e.*, the extensor tendons, should then be completely cut across, the joint opened, and the ligatures which have been previously placed in can be used for joining the tendons up again. In the case of the knee, arthrodesis is frequently employed, but inasmuch as the bones in paralysed limbs are frequently very slender and very fatty, we do not regard the operation as quite so justifiable, because of the possibility of subsequent fracture somewhere in the course of the long line of bone, and, if possible, tendon-grafting should be substituted.

Fig. 65.—A case of flail-like ankle, suitable for Arthrodesis.

The Surgical Treatment of Spastic Paralysis.—The object in making remarks on this subject is to emphasise the necessity of suitable surgical interference in the treatment of those distressing cases of spastic paralysis which have these characteristics: A child of nine or ten, of fair intellectual development, presents the following picture: He is entirely unable to walk owing to distortion of the legs. The feet are in a condition of talipes equinus or equino-varus. The knees are flexed, owing to the tightly-contracted hamstrings. The thighs are flexed and adducted, due to the contraction of the adductors, of the tensor vaginæ femoris and the sartorius and ilio-tibial bands. We are aware that in such cases as these neurologists frequently advise that nothing be done. But that advice is entirely contrary to ours, and once the spastic process has ceased, we find that we have to deal with the contractures following disuse and

perverted attempts at locomotion. In such cases as these, we are strongly of opinion that the contracted tendons and bands of fasciæ should be attacked in the following order: Firstly, the hips should be remedied by division of the adductor tendons near the symphysis pubis, and of the sartorius and the tensor vaginæ femoris just below the anterior superior spine of the ileum. The contraction of the capsular ligament of the hip-joint can be overcome by applying extension for about six weeks with the limbs in the abducted position. Then the hamstrings are divided and the contraction of the posterior ligament of the knee is overcome also by extension. At a further sitting the deformities of the foot are rectified by tenotomy. The limb may then be placed for a time in plaster of Paris up to the middle of the thigh, or in a suitable splint, such as a trough splint, with a foot-piece. We advise that the tendons should be attacked in the above order, inasmuch as it is difficult to estimate the amount of lengthening required in the tendo Achillis if the knees are contracted at the time of its division. In such cases as these we have seen excellent locomotion secured, and the child has been able to walk extremely well. We believe that the rationale of this method is as follows: Once the immediate effect of the central nervous lesion has subsided, the spinal cord remains in a state of undue reflex excitability. A tightly contracted muscle and tendon tend to augment this condition, and so induce in themselves further contractions. But not only so, the opponents of the contracted muscles are always in a state of elongation, and so remain permanently weak. We therefore deem it advisable to divide the contracted tendons with the double object of preventing the vicious reflex contraction, and of giving the opponents suitable rest followed by appropriate exercise.

Cases of contraction of the upper extremity are more difficult to treat. The limb is found in the following position: The elbow flexed, the forearm pronated, the wrist contracted, the fingers flexed, the thumb adducted and flexed into the palm. We have not had much success so far in the treatment of these cases, the most difficult element to overcome being the pronation of the forearm. But we believe that to these cases tendon-grafting might be suitably applied with beneficial results.

REFERENCES.—[1] "New York Med. Journ.," 1892; [2] Zeitsch. für. Chir." Band 43, sec. 470.

PARALYSIS (Infantile Spinal).

Græme M. Hammond, M.D., New York.

Acute Anterior Poliomyelitis.—Larat[1] believes the only remedy of value in this disease is **Electricity**. No matter how grave the case

may be, electricity should be employed as soon as the diagnosis is made. Faradism is not only useless, but is positively harmful; for every time a muscle in process of atrophy, and which does not respond to the current, is faradised the tendency to atrophy is increased. It is therefore the continuous current which should be used.

A large disc of tin, the size of the palm of the hand, is covered with chamois leather. This should be moistened with tepid water (not salt solution), and placed either over the cervical or the lumbar enlargement according to whether the upper or lower limbs are paralysed. This disc forms the positive pole of the battery. The negative pole consists of a small disc placed in a basin of tepid water, into which the extremity of the affected limb is immersed. A current of from 8 to 10 milliampères should be allowed to flow for about ten minutes. At the end of this period the current should be interrupted a few times, and, at the same time, the current should be reversed. Later, when the disease is subsiding, the number of interruptions should be increased.

This treatment must be carried out with great patience, and no decided result must be expected for a long time. The slightest case will require a year's treatment, a severe case several years, but the earlier the treatment is begun the better, and electrical intervention in the very beginning, especially during the febrile period, is of the greatest importance.

REFERENCES.—[1] "Brit. Med. Journ.," Sept. 25, 1897.

PARALYSIS (Landry's). *Græme M. Hammond, M.D., New York.*

Mills and Spiller[1] have contributed a very complete and elaborate essay upon this subject, and declare the following conclusions: (1,) That there is a form of ascending, flaccid paralysis, with little disturbance of sensation, with normal electrical reactions, and without involvement of the sphincters, and that this is of rapid course, usually terminating in death; (2,) Other cases differ from this type by one or more atypical signs, and transitional forms occur which make the diagnosis between Landry's paralysis, polyneuritis, and myelitis difficult; (3,) It is possible that in some cases no lesion exists, or it may be that in these cases the lesions are in an early stage of development, the patient succumbing to toxæmia before demonstrable changes in the nervous system take place; (4,) That Landry's paralysis may be due to myelitis alone; (5,) In Landry's paralysis, polyneuritis may be present, but changes in the cell bodies of the anterior horns will also usually be found in such cases by Nissl's stain, and it is sometimes

difficult to say whether the cellular changes are primary or secondary; (6,) It is probable, in some cases, at least, that the entire peripheral motor neuron is attacked at the same time by the poison of the disease.

REFERENCE.—[1] "Journ. of Nerv. and Ment. Dis.," June, 1898.

PARALYSIS OF LARYNX. (See "Larynx, Disorders of.")

PARALYSIS (Ocular). (See "Vision, Disorders of.")

PERICHONDRITIS OF LARYNX. (See "Larynx, Disorders of.")

PERIOSTITIS. *Priestley Leech, M.D., F.R.C.S.*

C. T. Dent[1] has a useful article on periostitis following muscular exertion.

In "football knee" the tubercle of the tibia is often painful, and there is also effusion into the joint in some cases. The tubercle often remains enlarged after the pain has gone.

TREATMENT.—The best treatment is the use of **Flying Blisters.** Iodide of potassium does not appear to be of any use. Care must be taken that these conditions are not mistaken for commencing joint disease. These affections are often due to the acquirement of a "bad style" of play. Another form is seen in housemaids, where the periosteum corresponding to the bony attachment of the pectoralis major to the chest is affected; there is usually fulness and tenderness over the affected area, with perhaps a slight local increase of temperature. It appears to arise from the action of sweeping.

In one case the clavicular attachment of the pectoralis was alone affected. In one patient the affection was ascribed to overworking the sewing machine. The treatment consists of abstention from the particular work which brought on the affection.

Other examples of similar affections are periostitis of the scapular attachment of the long head of the biceps from working the handle of a beer engine, accompanied by effusion into the shoulder joint; periostitis of fibula in omnibus-drivers from pressure on the foot-board, and periostitis of the attachment of the muscles of the calf of the leg—the left—due to pressure on the brake of the omnibus.

REFERENCE.—[1] "Practitioner," Oct., 1897.

PERITONITIS (Surgery for). *Priestley Leech, M.D., F.R.C.S.*

Surgical Treatment of Acute Septic Peritonitis.—Lockwood,[1] in an address on this subject, draws attention to several points that need to be emphasised, and are worthy of repetition.

To cure cases of septic peritonitis it is absolutely essential that they should be diagnosed at the very earliest possible moment, and the

difficulties of diagnosis are exceedingly great. One of the most misleading signs is the general condition of the patient; until almost moribund, these patients have often a good aspect, and their voices are strong. The most important sign is the pulse rate. This is markedly accelerated in peritonitis, and any increase in the pulse rate should be looked upon with suspicion; in very rare instances the pulse may be slow. Lockwood thinks, contrary to the usually accepted opinion, that the temperature is always raised in septic peritonitis; it may be sub-normal if taken in the mouth or axilla, but if taken in the rectum it will be found to be raised. Another of the most constant symptoms of acute septic peritonitis is acute intestinal obstruction.

All people with peritonitis at some period or other cease to empty flatus and fæces out of their bowels; the intestine, being very much like a joint, when it becomes inflamed ceases to move. Another point upon which much stress has been often laid is rigidity of the abdomen, but much rigidity means very marked and extensive peritonitis. Before this occurs there are other signs which would generally lead one to think the patient had got peritonitis; first of all, abdominal distension is very significant; the abdomen may be very resonant and yet contain a lot of pus, for the peritoneal cavity often contains gas in these cases. Another point is the presence of immobility over certain parts of the abdomen in these cases, *e.g.*, the abdominal wall over an inflamed appendix is immobile; this localised immobility often points to the seat of septic peritonitis.

The extreme silence and stillness of the abdomen is suggestive. In mechanical obstruction or colic the intestines are on the move, and can be seen or felt; as soon as the intestines become inflamed they are still. On listening with the stethoscope in peritonitis nothing is heard; in mechanical obstruction or colic all sorts of noises are heard. Pain which the surgeon can elicit on pressure is also very important. The patients often complain of pain about the umbilicus, but pressure elsewhere, *e.g.*, over the right linea semilunaris, will elicit pain; if no pain is elicited here, the rectum should be examined, or in the female, the vagina. An attack of retention of urine, or acute pain on micturition, is often associated with the pelvic type of appendicitis.

Lockwood has seen a pelvic abscess in acute septic peritonitis mistaken for a full bladder. He has no doubt that an early operation in most cases of acute septic peritonitis would yield comparatively good results.

Most of these patients die from heart failure, and the great difficulty is to keep the heart going.

Pearce Gould[2] gives notes of twelve cases of acute general peritonitis from infective peritonitis. All were operated on, and seven of the cases recovered.

REFERENCES.—[1] "Clinical Journ.," June 8, 1898; [2] "Lancet," Jan. 1, 1898.

PERNICIOUS ANÆMIA. (See "Anæmia.")

PERTUSSIS. *Henry Dwight Chapin, M.D., New York.*

Dr. Philip J. Brayn[1] advises **Naphthaline** in the treatment of pertussis. A small muslin or linen bag containing the drug is suspended around the child's neck. Or the drug is well rubbed into the child's clothes, and the floor of the chamber sprinkled with it. The frequency of the paroxysms are thus diminished and the patients made more comfortable in every way.

Dr. Moncarvo[2] swabs the periglottic region with a 10 per cent. solution of **Citric Acid**, with simple syrup. This also constitutes an effective prophylaxis against infection. He considers **Resorcin** and **Asaprol** the most effective of other remedies.

Dr. G. Koch[3] prescribes **Quinoline** in pertussis, to be taken internally, in daily amounts of from 4 to 15 grains, according to the patient's age, and the severity of the disease.

Dr. Weill[4] concludes that infection ceases very soon after the characteristic whoop commences, and that, therefore, in a family it is not the patient who is already whooping, but his brothers and sisters who have not previously had pertussis, who ought to be isolated.

REFERENCES.—[1] "Brit. Med. Journ.," June 12, 1897; [2] "Therapist," May 14, 1898; [3] "Gaz. heb. de mèd. et de chir.," June 17, 1897; [4] "Lyon méd.," May 19, 1897.

PHARYNX (Affections of). (See also "Tonsil, Diseases of.")

R. Lake, F.R.C.S.

Atrophic Pharyngitis.—The writer has seen great relief from the use of **Tinct. Jaborandi**, in full doses; the effect unfortunately is transitory, but the drug appears to have no bad effects.

Sajous[1] advises the use of **Pilocarpine**, $\frac{1}{8}$ of a gr. in t.d.s.

Chronic Pharyngitis.—**Menthol** dissolved in oil of sweet almonds is recommended in the proportion of 1 in 10. The nostrils are painted and then the pharynx.[2] This is better accomplished by means of atomizers, and any of the highly rectified paraffins are applicable as the menstruum; this treatment is only palliative, and the cause must be sought in the nose. Nasal obstruction is invariably present, complicated in adults more frequently than not by digestive disturbances.

The gargle quoted below may prove serviceable :—

℞	Ext. Rhus Glabrae	℥j	Glycerini	℥j
	Ext. Hydrastin Fl.	℥j	Aq. ad	℥vj
	Potassii Chlor.	℥jss		

M. ft. Garg.

Rheumatic and Gouty Affections.—Watson Williams[3] writes, the former affections differ in no way from rheumatic affections of other parts of the organism. In acute rheumatic pharyngitis, the soft palate especially towards the free edge, the pillars of the fauces, the tonsils and posterior pharyngeal wall, and in some cases the uvula is œdematous and swollen, and quotes Frudenthal,[4] who believes them to be a form of ulcerative pharyngitis, due to rheumatism. Gouty pharyngitis is very painful, often accompanied by pain shooting up to the ears. The inflammation is ucute ; the parts red ; and the pharynx very irritable ; in later stages chronic thickening and even concretions may appear.

Carcinoma.—A useful analysis of carcinoma of the pharynx is given by Kroenlein[5], in a series of sixty-one cases. The ratio of the sexes was five males to one female. Carcinomata of the naso-pharynx is very rare, whilst that of the oro-pharynx is more common, as is that of the laryngo-pharynx.

The course if left alone is rapid, about seven months. Kroenlein had operated on fifteen cases ; of these, ten died of recurrence, the average duration of life being fifteen months, or a gain of ten months. One died of another cancer, two were still alive, one with recurrence, seven years after the operation. In laryngo-pharyngeal cancer he performs lateral pharyngotomy. The incision, starting from the anterior border of the sterno-mastoid, passes beneath the hyoid bone but must not pass over the mid-line. Out of eight cases operated on by this method, one is alive, one died from recurrence, and one is still alive. Of sixty-one pharyngeal cancers only twenty-nine could be operated on ; two were cured, eleven died from the operation, and all the rest from recurrence. The total average increased duration of life was seven months.

It becomes a question therefore to what extent this operation is advisable, and one should allow the patient to know the probabilities and settle for himself.

REFERENCES.—[1]"Med. Rec.," Feb. 5, 1898 ; [2]"Med. Age," May 25, 1897 ; [3]"Laryngoscope," April, 1898 ; [4]"New York Med. Rec.," Feb. 16, 1898 ; [5]"Journ. of Laryng.," Aug., 1897.

PHARYNX (Syphilis of). (See "Syphilis of Nose and Throat.")

PHTHISIS. (See also "Thorax.")

F. de Havilland Hall, M.D., F.R.C.P.

The recognition of the dependence of consumption upon the presence of the tubercle bacillus and the consequent infectious nature of the disease has led to the old view of the heredity of this disease being doubted. Those who reject the doctrine of heredity maintain that the so-called predisposition to consumption is in reality a question of environment and proximity to the risks of personal infection.

Dr. J. E. Squire [1] very ably argues that the direct influence of heredity is small. Once let a parent recognise that it is by *infection* and not by *inheritance* that he may be a danger to his children, and it will not be difficult to persuade him to take precautions against spreading the disease. Thus prophylatic measures will be easily introduced into the household where sanitary inspectors cannot penetrate.

When Koch made his brilliant discovery of the tubercle bacillus the natural tendency was to attribute all the mischief set up in the lung to this particular bacillus. Increasing knowledge of bacteriology has, however, shown that there is a mixed infection in pulmonary tuberculosis.

In view of the controversy which has been going on recently about small-pox it may be interesting to quote the observations of Laudouzy in reference to the connection between this disease and tuberculosis. He found that out of three hundred patients with evident marks of small-pox only eleven, or 3 per cent. were not tuberculous. Tuberculosis supervened twenty to twenty-two years after the variola; but a connection between the two seems evident when one sees in the same family those who had had small-pox die of tuberculosis, whilst their brothers and sisters who have escaped variola remain free from tuberculosis. The only peculiarity of the tuberculosis in these cases is its slow evolution and the tendency to fibrous transformation. It is rare to observe acute or galloping consumption. The suggestion is offered whether the frequency of small-pox in certain districts is not a cause of the relative prevalence of tuberculosis in those districts.

Dr. Loomis [2] lays great stress on the state of the digestion, when in spite of careful attention to diet and method of feeding, it is impossible to keep a patient's digestive organs in any kind of condition for the proper assimilation of food. These are bad cases. One sees many of them. They are generally persons of high neurotic temperament. It matters not what the lung condition is, these patients seldom recover. Climate avails little when the patient is daily losing

ground because of unassimilated food. Medication is worse than useless, because of an enfeebled digestion which is constantly disturbed.

"Again, when the assimilation of food is good, the prognosis is always favourable, often even with desperate lung conditions.

"The second condition that always renders the prognosis bad in my opinion, is a rapid heart action noted at the beginning of a tuberculosis."

Intimately associated with the state of digestion is the question of loss of flesh. All will agree with the axiom laid down by Dr. Loomis, "that unless a person gains in weight, he is not improving, no matter which way other symptoms point. It is one of the best tests that we have for improvement in phthisis. Before a patient can gain flesh many things must happen of a beneficial character; the fever must diminish or disappear, the assimilation of food must be good, sleep must be fair, and the sweats must stop."

Dr. Loomis states that the very first physical evidence of tuberculosis—an evidence which will enable a diagnosis to be made weeks before the physical signs can be appreciated in front, where they are ordinarily looked for, is to be obtained in the following manner: The patient's arm is to be brought forward, the hand placed on the opposite shoulder, the ear placed over the portion of lung which is now uncovered by bringing the scapula forward, viz., just above and external to where the bronchial tubes are given off, there will be heard prolonged tubular breathing and fine râles on coughing.

TREATMENT.—Prevention is every year taking a more important place in the treatment of disease, and this is especially the case as regards phthisis. Already great success has attended the efforts made to check the spread of this, the most destructive of the diseases affecting mankind. This is shown by the returns of the Registrar General which prove that phthisis has declined from over 3,800 per 1,000,000 in 1838 to 1,380 in 1894.

Dr. Arthur Ransome[3] places phthisis among the class of complaints branded by Sir John Simon as "filth diseases."

The measures to be adopted in order to prevent the spread of phthisis are indeed very similar to those required for staving off an epidemic of enteric fever, with this difference, that instead of paying especial attention to drains and sewers and to the condition of the drinking-water, it is the purification of the air, the admission of sunlight, the drainage of the subsoil, the provision of damp-proof courses and concrete basements that must be chiefly attended to for the prevention of phthisis.

Dr. Ransome shows that theatres, concert-halls, assembly-rooms, churches, and chapels are badly ventilated, and the former, especially, are seldom visited by the rays of sunlight. This being so, it is hardly to be wondered at that they act as hotbeds and forcing grounds in which may be kept alive, and even cultivated, the germs of tuberculosis and other diseases. A wide field is thus offered to the sanitary reformer. To stop the spread of tuberculosis by meat and milk we must urge the provision of abattoirs; the systematic inspection of meat, and the destruction of tuberculous meat; the careful regulation of cubic space, light, and ventilation in all cow byres; the testing of milch cows by tuberculin by an appointed veterinary surgeon, and the killing of tuberculous cows. The sources of all milk brought into a town should also come under the supervision of the authority in whose district it is for sale, and all dairies and milkshops should be stringently looked after. By means such as these the death-rate has been brought down in New York from 4·42 in 1886 to 2·85 in 1897, and similar good results have followed in Brussels and Berlin.[4]

Much attention has been devoted during the past year to the climatic and open-air treatment of consumption, and this forms the subject of a special article (which see, p. 120).

The rules distributed at the out-patient department of the Victoria Hospital for Consumption, Edinburgh, should be widely known :—

RULES FOR CONSUMPTIVE PATIENTS AND THOSE LOOKING AFTER THEM.

Consumption is a communicable disease. It may pass from person to person. It may pass from one lung to the other, or from one organ to another.

The chief source of infection is the expectoration of the consumptive. The great danger lies in the drying of the expectoration, and the blowing about of the dried infectious material.

The spread of consumption can be largely prevented. *If the succeeding directions be obeyed, there need be no serious danger in ordinary intercourse with patients. The breath of the consumptive is not directly infectious.*

The patient should expectorate into a jar or cup containing a tablespoonful of carbolic acid (1 to 20) or other disinfectant.

The vessel should be changed once in twelve hours, or oftener. It should be cleansed by being filled up with *boiling* water. The combined contents should be poured down the w.c. The vessel should then be washed with *boiling* water.

When the patient is out of doors, he should carry a pocket spitting flask such as Dettweiler's, or the Victoria Hospital simpler model. The flask

should be used and cleansed like the jar. The patient should never spit on the streets.

The patient should not use handkerchiefs for expectoration. If this ever has to be done, the handkerchief should be of an inexpensive material, that it may be burned after use. Squares of rag or paper, which may be used for convenience, should be similarly treated.

The expectoration should on no account be swallowed, for thereby the disease may pass to other organs.

Consumptive patients should avoid kissing. Consumptive mothers should not suckle.

If expectoration has been accidentally deposited on the floor or other object, it should be wiped up and burned, and the surface of the object cleansed with strong antiseptic.

Rooms which have been long occupied by a consumptive patient should, before occupation by someone else, be carefully disinfected, as after other infectious disease.

Fresh Air is the food of the lungs. Therefore, see that the lungs be not starved :—

A.—By Day.—The patient should occupy as airy a room as possible. It must be scrupulously dry, and preferably removed from the ground. The window should be freely open. When able, the patient should be out of doors once or several times during the day. He must avoid over effort, and damp, or chill, which would counteract the benefit.

B.—By night.—He should sleep alone. The bedroom should be large and airy. The window should be kept open, less or more, according to the season.

There is little to add about the new **Tuberculin** to what was stated in last year's "Annual." Those who have employed this remedy seem to have carried out the directions laid down by Koch and have been cautious in claiming too much for this method. It is important to bear in mind that in cases of mixed infection the remedy is of little use, and Koch states that cases with higher temperature than 38° C. (100·4° F.) are only exceptionally suitable. (See also "New Remedies.")

Any physician who intends to employ the new tuberculin should carefully study Dr. Heron's[5] practical and judicious remarks on this method of treatment.

Dr. Heron states that he has never seen in his own practice harm done by the use of this remedy. He is of opinion that provided the disease is in a very early stage the remedy is of value in helping consumptives on the way to recovery.

In advanced stages of the disease the slight chance of possible good is not sufficient to compensate for the discomfort inseparable from the use of the hypodermic syringe.

Further experience in the use of **Maragliano's Serum** is of a contradictory nature. Professor Rumpf,[6] of Hamburg, says that it has no therapeutic effect at all, and as it has produced syncope in several instances he no longer uses it. On the other hand, Dr. Bertola[7] claims a specific action for the serum upon tuberculosis, but insists on the necessity of its being administered for a long time.

Dr. Hirschfelder[8] has found that by the action of the peroxide of hydrogen upon tuberculin he has obtained a liquid which when injected causes no greater local disturbance than any indifferent fluid would produce. There is no rise of temperature or any other unpleasant constitutional effect.

Dr. Hirschfelder in describing the action of this remedy writes: "The patients that have been treated by me with the **Oxytuberculin,** those who came in the very early stage of the disease before cavities were present, have been rapidly cured . . . Patients in whom the disease was moderately advanced have likewise rapidly improved, and some have entirely recovered. Of the very advanced cases, many have shown marked improvement, and many patients that I have declined to treat as being too far advanced, but who pleaded so hard for the treatment that I could not refuse, have impressed me by the wonderful improvement they have shown."

The reaction against the use of tuberculin as a curative agent has served to obscure its value as a diagnostic measure in the human subject. In veterinary surgery the method has obtained brilliant results—a correct diagnosis in over 99 per cent. of the cases.

Dr. Franklin M. White[9] states that in his hand the method has been productive of no ill results beyond a day's discomfort to the patient.

The tuberculin method is simple and easily applied. An absence of reaction after injection indicates almost invariably an absence of tuberculosis more than four times out of five.

The best dose for diagnostic work is a matter for further study. It is probably between 5 and 10 milligrammes for adults. Other authorities give only 1 to 3 milligrammes.

In regard to the criterion of what constitutes a reaction there has been considerable difference of opinion. Unless there is a rise of more than $1\frac{1}{2}°$ to 2° F. above the previously existing temperature, the reaction should not be considered positive. The constitutional symptoms are usually slight, being mainly headache and slight malaise with nausea. Rigors are uncommon.[10]

Dr. Vetlesen,[11] of Christiania, has employed **Potassium Iodide** for diagnostic purposes in twenty-seven cases. He gave a tablespoonful

three times a day of 1½ per cent. solution. At the end of two or three days there was a positive result in eight cases; the cough and expectoration increased and, on auscultation, sonorous râles could be heard, whereas there had before been no definite physical signs. In only four of these cases could the bacillus be detected, but in the others there were various signs characteristic of the disease. As for the nineteen patients on whom the iodide had no effect, the author considers them free from tuberculous disease. As a matter of fact, he has never been able to find Koch's bacillus in their sputa or produce in them any reaction with tuberculin; moreover, several of them have been under observation for two years without presenting any symptoms of pulmonary disease.

This effect of iodide of potassium upon the lung should be borne in mind, as in larger doses it may give rise to pulmonary congestion and softening.[12]

According to M. Grancher[13] **Raw Meat** reduced to a pulp is one of the best foods that can be recommended for a tuberculous patient. It may be taken in any way the patient pleases; in hot or cold bouillon, mixed with a little brandy or the yolk of an egg, or with a *purée* of potatoes, etc. The method of preparing this pulp is of great importance, and M. Grancher gives a detailed account of how it should be done.

This pulp, with eggs, forms the basis of the "diet of recovery." When it is given in amounts of from 3 to 6 ounces and more it does not overload the stomach. It may be taken with the two principal meals or as a light luncheon. It is quickly digested and easily assimilated. It is very superior to the meat powders, of which patients quickly tire, to the peptones, which are frequently impure, to the American consommés, and to the Leube-Rosenthal solution, all of which preparations are much less natural and less easily assimilated. From time to time the employment of this meat pulp should be interrupted, especially in the beginning, if diarrhœa sets in or if the patient becomes disgusted with it; afterward it may be given again in very small quantities, and slowly and progressively increased.

M. Grancher thinks that meat juice may be used as a substitute for the pulp for a few days every month, in order to avoid weakening the stomach or disgusting the patients; but he does not advise its steady employment, as it is very inferior to meat pulp or eggs. He advises that milk always be boiled or sterilised. Koumiss may be useful when the appetite is poor, and kephir when the stomach secretes an excessive amount of hydrochloric acid.

During the past three years Dr. Th. Heusser[14] has treated twenty-two patients with **Cinnamic Acid** with the result that six were cured, twelve improved, three without benefit, and one died. He finds that leucocytosis follows the subcutaneous and intra-muscular injection of this substance. In tuberculosis, aseptic inflammation develops around the tubercular centre, and in the third week a wall of leucocytes has formed around it, cutting it off from the surrounding tissues. Simultaneously the leucocytes commence to penetrate the necrotic tissues, and the bacilli at the end of a few months become difficult to detect, and disappear completely.

For clinical use Heusser prefers injections into the gluteal muscles, with the necessary antiseptic precautions. Commencing with $1\frac{1}{2}$ minims of the 5 per cent. emulsion this is gradually increased at each injection, which is made every second day, until the maximum dose of 15 minims is reached. This dose is maintained to the end of the treatment, which is continued for a month after disappearance of all symptoms.

The immediate effect of the injection is a burning sensation at the seat of puncture, the patients generally feel depressed and complain of feeling tired, and nearly all become irritable and nervous. Great patience is required, both by the physician and the patient, as the good effects of the treatment are not apparent during the first two or three weeks.

Heusser sums up his conclusions as follows: (1,) Cinnamic acid is a drug having great influence on tuberculosis; (2,) The gluteal cinnamic acid injections, if cautiously made, are absolutely innocuous; (3,) The gluteal cinnamic acid treatment is capable of curing a considerable number of pulmonary tuberculoses; (4,) Cinnamic acid is not a specific against tuberculosis.[15]

In last year's "Annual" attention was directed to the use of **Ichthyol,** and increasing experience has confirmed Dr. Moritz Cohn's favourable report.

Dr. Heinrich Fraenkel[16] reports from his observations upon thirty patients that the cough was lessened, the expectoration diminished both in consistency and amount, and was expelled with greater ease, the night-sweating ceased, the general condition improved. The preparation employed is equal parts of ichthyol (pure ammonium sulpho-ichthyolate) and distilled water, of which 20 to 40 drops are given four times daily. To correct the taste a few drops of oil of peppermint are added to the dose, which is taken in a full glass of water before meals. The odour and taste may cause nausea and vomiting in sensitive individuals, but without producing

irritation of the stomach, so that in this case it should be given in gelatin capsules.

Dr. Branthonne [17] also reports favourably of ichthyol and believes that its action is similar to creasote, but not so irritating to the stomach. He recommends an alcoholic solution, viz., ichthyol, 2½ drachms; alcohol (65 per cent. solution) 6 drachms. Of this mixture, 30 drops are given in water several times a day. The dose is gradually increased 2 drops a day until 150 drops are taken, when the ascending doses are stopped.

E. de Rienzi [18] finds that **Thymol** is a valuable remedy in the treatment of the fever of tuberculosis. He finds it to be of distinctly greater value than quinine, antipyrine, acetanilide, and sodium salicylate, as unlike these the thymol has no depressing effect. It is administered in 4-grain doses in the form of a powder enveloped in a wafer. These may be given three or four times a day, and gradually increased in frequency until 60 or 70 grains are given each day. He finds that tuberculous patients are very tolerant of large doses of thymol, and that it is well borne by the stomach, it seeming to favour digestion.

At one time **Creasote** was administered in enormous doses—150 minims daily—in the hope of saturating the system and thus securing a germicidal action. Better acquaintance with bacteriology showed that such action was impossible, and there was a danger lest the extravagant pretensions originally put forward should lead to the abandonment of the drug when they were recognised as ill-founded.

The true method of eliminating tubercle bacilli from the body and healing the lesions they have caused, and protecting the system against subsequent attacks is by improving the general vitality of the individual.

Zinn [19] reports that since the publication of Grawitz's article in July, 1896, there have been treated in Gerhardt's clinic eighty more cases of tuberculosis with the **Valerianate of Creasote.** As a rule, the remedy was given in capsules each containing 3⅓ minims, one or more capsules three times a day. In several cases the medicament was continued for several months. It was used in all forms of tuberculosis, and it was especially noted that there was in no case disturbance of the gastro-intestinal canal. It is accepted, he says, that, of all the many remedies which have been recommended for tuberculosis, beechwood creasote alone retains a prominent place, notwithstanding its use has so often been productive of disagreeable effects. The valerianate of creasote is therefore worthy of special mention because of its freedom from these disturbing influences.

Particularly in the early stages of tuberculosis will it be found of great service; it fulfills all the requirements of a reliable preparation which can be taken and well borne for long periods.

Dr. E. de Rienzi [20] recommends the internal administration of **Iodoform** in phthisis, and states that it causes a lessening of the cough, reduces the quality of inflammatory secretion and improves the general condition. He advises the iodoform to be given with tannin or naphthalin, as follows :—

℞ Iodoform 0·05 gme. (¾ grn.) | Tannin 0·1 gme. (1½ grn.)
For one powder. Dose.—From 2 to 4 such powders daily.

℞ Iodoform 0·05 gme. (¾ grn.) | Naphthalin 0·05-0·1 gme. (¾–1½ grn.)
For one powder. Dose.—From 2 to 4 such powders daily.

The powders containing tannin are intended for cases in which there is a tendency toward diarrhœa, while those containing naphthalin are intended for constipated cases.

The tannin in the above formula could be advantageously replaced be tannalbin, which has no action on the stomach, as has the former, but manifests its astringent action only on reaching the alkaline secretions of the intestines.

M. Combemale [21] has used **Acetate of Thallium** on thirty patients, tuberculous or not, afflicted with excessive sweats, and every case but one had been relieved. The daily amount is from 1½ to 3 grains administered in pills. It is not advisable to prescribe the remedy for more than four days in succession, its effects persisting for eight or ten days. It has, however, caused total and rapid alopecia in three cases. But the patients were previously losing their hair, and had, moreover, taken considerable doses for upward of a month, whence caution is needed only to avoid too long administration or too frequently repeated doses.

Sulphonal [22] is another drug which may be used with advantage in the night sweats of phthisis. The dose required is from 15 to 30 grains at bedtime or a little before, and it may have to be continued daily for a week or two.

Vomiting, which is so frequent and distressing a symptom in some cases of phthisis is generally due to hyperæsthesia of the pharynx. Dr. Berthier [23] has obtained the best results by a 2 per cent. solution of the hydrochlorate of cocaine on a piece of lint or absorbent cotton, the application being made to the fauces twice daily, and just before an attack of vomiting is anticipated. This treatment effects the entire and permanent disappearance of the hyperæsthesia in three or four days, when the applications are also suspended, only to be renewed if necessary.

Ferrand[24] employs a solution of **Potassium Bromide** in glycerin applied topically for the same purpose.

Excellent results may be had from small pieces of **Ice** given immediately after meals, and equal success from **Chloroform Water** and **Menthol** after food ; attacks of cough are thus lessened or suppressed, and do not cause vomiting.

In the hacking, irritable cough of phthisis, unattended with much expectoration, Dr. Murrell[25] recommends the following prescription :—

℞ Codeine	gr. iv	Syrup of Lemon	℥j
Diluted Hydrochloric Acid	℥ss	Water	ad ℥iv
Spirits of Chloroform	℥iss		

Make an emulsion. A teaspoonful frequently, when cough is troublesome.

It is asserted that **Hydrastis Canadensis** promptly checks the cough of phthisis and that the muco-purulent expectoration is markedly diminished ;[26] 20 to 30 minims of a mixture of equal parts of the liquid extract of hydrastis canadensis and the liquid extract of ergot may be given four or five times a day after food in a little water.

Little can be added to the full account of the treatment of hæmoptysis which was given in last year's "Annual."

The swing of the pendulum is now inclining to a resuscitation of venesection in hæmoptysis as well as in other conditions. Dr. W. Ewart,[27] who quotes Sir George Burrows as advocating this method of treatment, bled a patient to 8 ounces with immediate relief. In this instance the patient had had profuse hæmoptysis as the result of phthisis ; his pulse was of high tension, which was not diminished by purgatives and morphia.

Dr. Lawrence F. Flick,[28] of Philadelphia, states that he has used **Nitroglycerin** in four cases as a hæmostatic in hæmoptysis, and with excellent results. He believes that, theoretically, it should be a good remedy for hæmoptysis, and it was upon theoretical grounds that he was led to use it. In hæmoptysis there are two physical laws in operation, namely, application of force and resistance. The action of nitroglycerin is to lessen the resistance, and it is because of this action that it becomes available as a remedy in hæmoptysis.

Dr. J. Palvy[29] has tried **Chloral Hydrate** in fifteen cases of hæmoptysis, giving doses of 15 to 20 grains *per rectum*. They are reported to have produced an effect within one-half to three-quarters of an hour.

In last year's "Annual" attention was directed to the use of **Silver Nitrate** in the anorexia of phthisis. Dr. Crocq,[30] of Brussels, gives it in combination with ergotine with great success.

Dr. Luton,[31] of Reims, employs **Copper Acetate** or phosphate for the purpose of rendering the system unfavourable for the development of tubercle bacilli. The remedies are employed in the following forms :—

℞ Copper Acetate 0·05 gme. (¾ grn.) | Mixture Acacia 125 gme. (4 fl. oz.)
Sod. Phosphate 0·5 gme. (8 grn.) |

Dose.—Tablespoonful every hour, on an empty stomach.

℞ Copper Acetate 0·01 gme. | Calcium Phosphate 0·5 gme. (8 grn.)

Make into ten pills. Dose.—1 or 2 daily, on an empty stomach.

The remedies may be used hypodermically in the following forms :—

℞ Cop. Phosphate 5 gme. (75 grn.) | Distilled Water 30 gme. (1 fl. oz.)
Glycerin 30 gme. (6 fl. dr.) |

Or :

℞ Copper and Ammonia Acetate 1 gme. (15 grn.) | Distilled Water 100 gme. (3½ fl. oz.)

Dose.—1 c.c. of either of the mixtures.

After the failure of surgeons to treat phthisical cavities in the lungs by incision and drainage, physicians might have thought they would be left in undisturbed possession of cases of pulmonary tuberculosis. But such is apparently not to be the case as Dr. Murphy,[32] the distinguished surgeon of Chicago, comes forward with a proposal to treat tuberculosis of the lungs by securing immobility, functional rest, of the affected part. This he accomplishes by injecting **Nitrogen** into the pleural sac. It has occurred to many observers in the past to notice that a moderate pleural effusion or pneumothorax will check the progress of an acute phthisis, and that removal of the effusion, be it fluid or air, has been followed by rapid extension of the phthisical affection. We understand that Dr. Murphy has been experimenting with the treatment for three years, and we look forward with much interest to the further progress of a method of treatment so original.

The **Röntgen Rays**[33] have been employed in the treatment of pulmonary phthisis, and improvement attributed to the use of these rays has been reported by several observers. The experiments carried out by Dr. Pott,[34] of Bournemouth, point to the conclusion that the improved condition of tuberculous patients, who have been submitted to the influence of X. rays was due to causes other than the action of the rays.

REFERENCES.—[1] "Amer. Journ. Med. Sci.," Nov., 1897 ; [2] "Med. Rec.," May. 21, 1898 ; [3] "Lancet," Jan. 1, 1898 ; [4] "Brit. Med. Journ.," July 23, 1898 ; [5] Ibid., July 9, 1898 ; [6] "Lancet," Dec. 4, 1897 ;

[7] "Amer. Journ. Med. Sci.," June, 1897; [8] "Indian Lancet," June 1, 1897; "New York Med. Journ.," Oct. 10, 1897; "Lancet," Sept. 4, 1897; [9] "Therap. Gaz.," June 15, 1898; [10] "Amer. Med. Journ.," Feb. 5, 1898; [11] "New York Med. Journ.," Jan. 1, 1898; [12] Ibid., April 30, 1898; [13] "New York Med. Journ.," June 19, 1897; "Journ. de méd. de Paris," May 9, 1897; [14] "Therap. Monats.," Sept., 1897: "Clin. Journ.," Feb. 2, 1898; [15] "Treatment," Oct. 28, 1898; "New York Med. Journ.," Oct. 16, 1898; [16] "Amer. Journ. of Med. Sci.," Sept., 1897; [17] "Therap. Gaz.," Feb. 15, 1898; [18] "Med. Week," Sept. 10, 1897; [19] "Therap. Monats.," March, 1898; "New York Med. Journ.," July 16, 1898; [20] "Amer. Med. and Surg. Bull.," Feb. 25, 1898; [21] "New York Med. Journ.," May 14, 1898; [22] "Clin. Journ.," Nov. 3, 1897; [23] "Amer. Med. and Surg. Bull.," May 10, 1898; [24] "Med. Age," July 10, 1897; [25] "Med. Rec.," July 9, 1898; [26] "Therap Gaz.," June 15, 1898; [27] "Lancet," Aug. 28, 1897; [28] "Amer. Med. and Surg. Bull.," June 10, 1898; [29] "Indian Lancet," Aug. 1, 1897; [30] "New York Med. Journ.," Oct. 2, 1897; [31] "Amer. Med. and Surg. Bull.," June 10, 1898; [32] "New York Med. Journ.," June 25, 1898; [33] "Brit. Med. Journ.," June 12, 1897; [34] "Lancet," Nov. 20, 1897.

PLEURISY. (See also "Thorax.")

F. de Havilland Hall, M.D., F.R.C.P.

Dr. Pitres,[1] in order to settle what are the forms assumed by fluids effused in the pleural cavity, has injected into the pleural cavities of the human cadaver liquid substances which become solid on cooling or standing, and will therefore preserve their exact form.

"Dr. Pitres summarises the results of his own observations as to the form and topography of the dulness in normal pleural effusions:—

(1,) In small effusions, the patient being seated, the dulness will be found at the lateral aspect of the chest in the axillary line. Its upper border is almost horizontal, its lower curved. The upper border does not assume the curved form described by Damoiseau, and called after him Damoiseau's curve. In all these small effusions the lateral dulness quite disappears when the patient lies on his back.

(2,) In effusions of moderate amount, the patient being seated, the upper limit of dulness in front and laterally is a horizontal line. Posteriorly, at a distance of from two to three inches from the vertebral column, the line of dulness abruptly falls, as shown in *Fig.* 66, forming a triangle in which resonance persists below the general level of dulness.

(3,) In some cases also there is above the level of dulness an intermediate zone of sub-resonance which crowns the dull area, and to this sub-resonant area the name of "the hat" has been given. It has sometimes a height of four inches, and its form is usually semilunar, as shown on the right side in *Fig.* 66. It is probably due to pulmonary

collapse, the result of the pressure of the fluid. In most of these cases of moderate effusion there is a change in the form of the dulness with a change in the position of the patient. Usually the anterior level of dulness becomes raised when the patient sits up, but sometimes the reverse occurs, and it becomes lower. These changes are shown in *Figs.* 66, 67, and 68. When there are large effusions there is no alteration in the shape of the dull area with change in the posture of the patient.

(4,) In about a third of the cases the areas of dulness assume abnormal forms, depending on various circumstances. Thus the effusion may spread itself out between an indurated lung and the

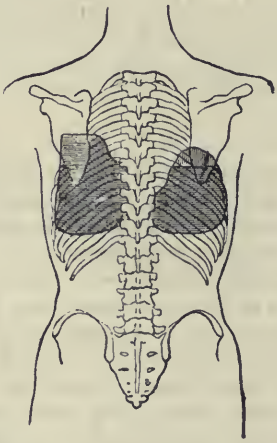

Fig. 66.—Diagram to show the line of the upper level of dulness in moderate effusions.

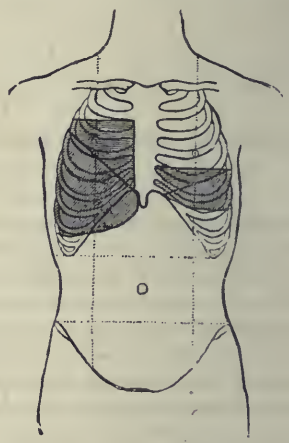

Fig. 67.—Diagram to show the change in the area of dulness with change of position in effusions of moderate amount.

thoracic wall, so that a small amount of fluid may appear large. The effusion may be suspended in the upper part of the thorax as the result of adhesions in the lower part, or its upper anterior border may be oblique, as shown in *Fig.* 69, in consequence of adhesions over the upper part of the lung."

A pulsating pleural exudation is more common than was at one time allowed. Apparently the pulsation can be originated in various ways. A strong cardiac pulsation is always essential. Very frequently the breast wall is especially thin, the pleura costalis destroyed.

This harmonises with the fact that in the majority of cases purulent exudations exist, and that rupture externally is by no means rare. In all other respects the exudation behaves as does the non-pulsating form.[2]

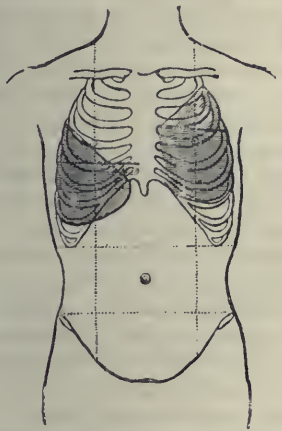

Fig. 68.—Diagram to show the occasional fall in the level of dulness in the sitting posture.

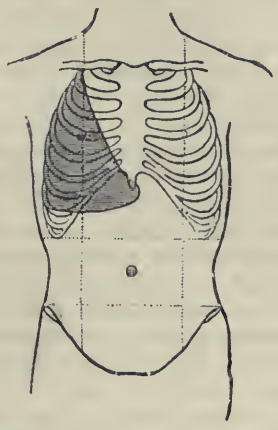

Fig. 69.—Unusual area of dulness in sitting posture determined by adhesions.

TREATMENT.—In the treatment of pleurisy the pain in the side generally demands first attention. If very acute, an hypodermic injection of **Morphine** may be required, and repeated if necessary during the first few days that pain is an urgent symptom. The writer, however, prefers to start with the application of half-a-dozen **Leeches**; in severe cases occurring in plethoric patients a dozen may be required. The effect of this method of treatment is usually to bring about a rapid abatement of the pain and difficulty in breathing. In less severe cases, **Poultices** will often give relief. The application of **Blisters** should be reserved until febrile symptoms have practically disappeared, and then they may be tried after the bulk of the fluid has been removed by aspiration.

Ordinary diuretics and absorbents, such as digitalis and iodide of potassium, have but little influence in promoting the disappearance of the effusion, but **Salicylate of Sodium** in full doses is a drug which certainly deserves a full trial.[3] If the salicylate has a depressing action on the heart, 2 or 3 grains of the citrate of caffeine should be added to each dose.

Page[4] likens the pleural cavity to a large joint, and sees no reason

why it should not be subject to rheumatic inflammation and effusion, as the knee, for example, in rheumatic fever; hence his advocacy of salicylate of sodium in these cases.

Great discrimination is often required to select the most suitable time for aspiration. Unless urgent symptoms present themselves, it is not desirable to remove the fluid during the acute stage. The reason for it is obvious. There is a great tendency to the formation of adhesions in pleurisy under the best conditions. To draw off this fluid during the active stage of inflammation, as evidenced in part by the pain and temperature, would simply bring the inflamed surfaces together that had hitherto been kept apart by the effusion. Increased irritation with a more severe grade of inflammation would follow, and extending into the subserous connective tissue would convert a superficial into an interstitial exudation and result in a thickened pleura, if not extensive plastic adhesions. Such a termination would be extremely unfortunate, and due to unnecessary if not meddlesome interference. Both lungs would be damaged, the one from imperfect expansion due to such thickening of the pleura and extensive adhesions that hill-climbing or the use of the pneumatic cabinet would fail to break them up; the other form vicarious emphysema, in its effort to do compensatory work. It is to avoid these injuries to the pleuræ, with consequent permanent injury to the organs of respiration, that Potain and other eminent authors so earnestly recommend that in ordinarily favourable cases the operation be not resorted to before the second or third week, when all signs of active inflammation have subsided.

But if drawing off the fluid is not good practice, allowing it to remain too long may be said to be equally bad. In this case the period of active inflammation is over, the stage of organising has arrived, and if the lung be allowed to remain compressed and quiescent, adhesions are almost certain to result.[5]

Direct illumination of the pleural cavity has been employed for the detection of a foreign body. After the resection of a rib, the cavity was illuminated by means of a cervical speculum and urethral lamp.[6] In the case of metallic substances, Röntgen rays might be employed.

Dr. T. S. Adams[7] gives the following reasons in support of the method of irrigation by submersion in the treatment of empyema: (1,) It is simpler, cleaner, easier, and in the ten to fifteen minutes that the patient is sitting in the bath he will be washed out two hundred to three hnndred times, not three to four times; (2,) Much economy is caused in dressings, as by removing the thickened matter from the pleural surfaces there will be less irritation and the pro-

duction of much less pus; (3,) The baths improve the general condition of the patient, causing better metabolism. In irrigation fresh water is constantly used, but as the pus and other products are heavier than water, they fall to the bottom of the tub, while the upper portion of the water remains unpolluted.

The method of treatment is recommended in cases of empyema, in which an opening of sufficient size to enable free ingress and egress of the water is made. It is a matter of choice which antiseptic, if any, is to be used; but care should be exercised in employing those which are easily absorbed. Boiled water or a saturated solution of boric acid will be sufficient in most cases; the latter, however, would add greatly to the expense. The bath is prepared in the same manner as it is in the Brand method, and the water should be kept at a uniform temperature—100° F.—by adding warm water from time to time. There is no chilling, so the patient may remain in the bath several minutes after the water is returned perfectly clear.

The patient's entire body should be kept under the water until the expiration gave out clear fluid, the time varying from ten to twenty minutes. At first a daily bath should be given, and then one every other day until recovery takes place.

REFERENCES.—[1] "Practitioner," Apr., 1898; [2] "Amer. Med. and Surg. Bull.," Sept. 25, 1897; [3] "Therap. Gaz.," May 16, 1898; [4] "Med. News," Feb. 13, 1897; [5] "Therap. Gaz.," July 15, 1897; [6] "Amer. Pract. and News," June 26, 1897; [7] "Treatment," July 28, 1898.

PNEUMONIA. *F. de Havilland Hall, M.D., F.R.C.P.*

We commented in last year's "Annual," on the microbic origin of pneumonia. Increasing experience tends to show that in pneumonia we have to do with a multiple infection.

Dr. J. W. Moore[1] has adduced evidence "that the micro-organisms peculiar to erysipelas, to influenza, to tuberculosis and to enteric fever, may one and all give rise to a specific pneumonia or pneumonic fever. So also may Loeffler's diphtheria bacillus and the bacillus of malignant anthrax, as well as other pathogenic bacteria."

The discovery of the microbic origin of pneumonia has accentuated the idea of its infectious nature, and Dr. Beverley Robinson[2] accepting this view, writes as follows: Free ventilation of the patient's room is essential. No longer should rooms for pneumonia patients be close and overheated. The temperature must be moderate—65° to 68° F.—and suitable arrangements made for thorough ventilation. Some disinfectant vaporised by boiling water may be advantageously generated in the room, both for the possible good to the patient and to prevent the spread of disease.

Inasmuch as pneumococci are present in the mouth at the initial stage of the pneumonic invasion, it is wise to have the patient make use of antiseptic gargles. Dr. G. Lejon is very strict as regards this observance, and "enjoins in every case strict buccal antisepsis, by rinsing the mouth frequently with solutions of boric acid (4 to 1,000) or of thymol (1 to 1,000). It is indicated, also, to continue the use of these antiseptic gargles even after the pneumonia is recovered from, as pneumococci may still remain in the mouth and may possibly occasion a recurrence of the pneumonia in the individual.

The recovery from pneumonia is occasionally retarded by delay in resolution of the lung. The temperature falls, defervescence is apparently more or less complete, but there still remains dulness or percussion over the affected area.

Dr. Stengel is convinced that no form of medicinal treatment is particularly useful. **Counter-Irritation** has, however, been of apparent benefit in every case in which he has made trial of it, and generally in proportion to its severity. Strong mustard poultices have sometimes been useful, but blisters were always more efficacious.

Next to counter-irritation should be placed systematic **Breathing Exercises,** either in the form of deep inspirations and expirations, or of exercises with bottles after the method suggested by James for the treatment after evacuation of cases of empyema. Adequate breathing would perhaps properly rank as the most important requisite for speedy resolution, but in cases of marked consolidation has disadvantages, such as the tendency to exhaust the patient, and the lack of expansion of the affected side rendering the breathing useless. In cases, however, of moderate consolidation or persistent broncho-vesicular breathing after pneumonia, Dr. Stengel relies upon breathing exercises rather than counter-irritation.

In a case of delayed resolution after pneumonia Dr. Stengel employed a rather unusual form of treatment, first suggested by Fochier.[3] This observer, noting that the occurrence of local suppuration in puerperal fever is often followed by improvement, suggested that artificially induced suppuration might benefit cases of puerperal sepsis. He practised injections of turpentine (about 1 centigramme per dose), giving three or four injections in different places. Following a suggestion of Fochier that the same form of treatment might be of use in non-pyæmic diseases like pneumonia, Lepine[4] practised it in a case of pneumonia on the twelth day when the patient was in a desperate condition. Recovery ensued and was seemingly largely the result of treatment. Subsequently Dieulafoy, L. Bard, Gingeot and Raoul reported successful cases, while Rendu referred, in discussion of

one of the papers, to three cases that terminated unsatisfactorily. Two of these, however, were moribund when the treatment was instituted, and the third was a broncho-pneumonia and not croupous.

Dr. Stengel injected **Turpentine,** ½ a drachm, into the subcutaneous tissue of the right side of the chest, in the anterior axillary line, about the eight rib. This caused severe pain, and was followed by an abscess.

In the case in question there was not the slightest sign of resolution during a full month prior to the development of the abscess, and immediately after this the dulness diminished, moist râles became audible, and the breathing became less bronchial. In a few days the lung had cleared entirely, and the patient soon recovered completely.

The beneficial effect of this procedure has been attributed to an increase of phagocytic activity on the part of the leucocytes of the blood.

A case reported by Sir William Broadbent,[5] illustrates a rare complication of pneumonia, viz : an abortive crisis and premature resolution, followed by suppuration of bronchial glands. In this case there can be little doubt that the boy's life was saved by the application of the wet pack, as previous to this he was getting visibly worse in every respect, and was apparently drifting rapidly into hyper-pyrexia.

TREATMENT.—Dr. Foxwell[6] gives some very practical directions as to the treatment of pneumonia. Continuous rest in bed, he says, until at least a week after the crisis is the most important treatment of all. Simply to lie in bed is not enough to bring rest ; if the patient is restless, every possible source of irritation must be sought for ; no detail is too small for consideration. Linen sheets are preferable, as they are smoother and cooler. The head should be low and the pillows changed frequently. The room should be large and airy, the window constantly open, the light subdued, and direct sunshine avoided ; a temperature of 60° F. is the best, and this should be steadily maintained.

Light and unstimulating food is required, says Dr. Foxwell ; meat is to be avoided, as also are all meat essences ; milk alone is usually enough, although milk puddings with some of the various milk foods or bread and butter may often be added with advantage. If there is great thirst and milk is readily taken, it is better to skim it, and three pints of fresh or four pints of skimmed milk a day is quite sufficient for an adult. The reprehensible practice of allaying thirst with milk is however, says the author only two common ; it leads to giving milk at all times and with every variety of frequency, and vomiting, constipation,

and anorexia result. The author advises satisfying the patient's thirst without stint at every hour of the twenty-four with plain or flavoured water, but not with liquid food. Food, liquid or solid, must be given at stated hours, and the amounts must be small and about equal.

The emunctories should be kept free, for a moist skin is far less irritable than a dry one, and empty bowels unload the liver and ease the heart by lowering the tension, and the excretion of much urine means the rapid removal of inflammatory products and the dilution of the poison remaining in the body, while all this probably aids the excretion of the toxin.

The prompt application of from three to twelve **Leeches**, according to the severity of the lesion (not the pain), is most successful.

Aconite in minim doses of the tincture every half hour for twelve doses, and then every hour, often acts like a charm on the patient altogether, moistening the skin and inducing sleep; but its depressing action on the heart is extreme, and during its administration the patient should be seen every four hours at least. **Antimony** in doses of $\frac{1}{8}$ of a grain every hour for twelve doses, and then less frequently, is a safe and most reliable drug, and devoid of any marked effect on the heart. **Morphine** is practically the only sedative, and it may be given in early pleurisy—the first three days—without much anxiety; but later, especially in middle-aged and elderly people, it is full of danger.

In considering the question of treatment it must be remembered that there are two main conditions to be dealt with: First the intoxication with its fever, prostration, delirium and other nervous concomitants, and secondly the mechanical results of the consolidation—diminution of air-space in the lungs, blocking of a larger or smaller portion of the vascular system, and as results of the action and inter-action of these conditions, imperfect purification of the blood, and interference with the action of the right heart, increasing the respiratory and circulatory disturbance.

For the relief of the former condition we must look out for an anti-pneumotoxin, and bearing in mind the brilliant results that have been obtained from the use of antitoxin, in cases of diphtheria, we may reasonably expect that ere long a serum of equal potency will be available in cases of pneumonia. The investigations of the Klemperer brothers, Foà, Mosny, Emmerich and Neisser, have determined that immunity from pneumonia can be readily conferred on animals by injections of blood serum taken after the crisis of this disease. Several observers have treated cases of pneumonia in the human subject with the serum of immunised rabbits, or with the blood serum of patients,

convalescent from pneumonia, and the results have been such as to warrant the most confident hopes in the future for the success of their plan of treatment.

Dr. Washbourn[7] has fully described the method of preparing **Anti-pneumococcic Serum,** the mode of administration, and has recorded two cases in which he employed it successfully. Two other cases in which his anti-pneumococcic serum was administered successfully have been reported.[8]

Prof. Pane,[9] of Naples, has also discovered a serum for curing pneumonia. Its use is indicated not only in pneumonia but in all diseases caused by Fraenkel's bacillus, namely, epidemic cerebro-spinal meningitis, pleurisy, pericarditis, peritonitis, the arthritis of pneumonia, etc.

Prof. de Rienzi[10] has had very gratyfying results with this serum. During the last three years he has used the serum in thirty-two cases (and in the earlier years only the severest cases were selected ; in the last year all the cases (fourteen) were treated with serum), with a mortality of 9 per cent., whereas in the previous years with the ordinary treatment in vogue, the mortality was 24 per cent. No bad results have followed injection, and in one case as much as 200 c.cm. was injected in the course of twenty-four hours. The most marked effect was the lowering of the temperature. Of the three fatal cases, two were admitted almost moribund, and the third had serious concomitant disease.

The importance of the serum treatment of pneumonia cannot be over-estimated, as the observations of Osler, and others, prove that the prognosis of pneumonia has far more to do with the degree of toxæmia than with the mechanical interference with respiration and circulation. For the relief of this latter condition, if the patient is plethoric and is seen early in the disease, the removal of twelve to sixteen ounces of blood, by relieving the mechanical congestion of the lung, favours an early termination of the local process. Unfortunately, only a small minority of the cases which present themselves for treatment is likely to be benefited by venesection.

Of drugs designed to act upon the heart, Dr. S. Solis-Cohen[11] prefers **Aconite** and **Nitroglycerin**; the first has usefulness only before consolidation, as indicated by bronchial breathing, has taken place. It is, however, undoubtedly useful during the preliminary stage of congestion in which the crepitant râle is heard. It probably acts mechanically. Nitroglycerin finds its use during the stage of hepatisation, to relax the vascular channel generally, both pulmonary and systemic, and in that way, in some measure obviates the necessity of venesection.

It should be given as *spirit of glonoin* in drop doses every hour at first, until the patient's susceptibility is ascertained, when the size of the doses and the intervals should be regulated accordingly. One judges by the effect upon the tension, force and frequency of the pulse, and by the condition of the right heart.

Increasing experience in the use of **Oxygen** has fully justified the praise bestowed upon it by its introducers. To obtain its full effect, however, it must be administered for considerable periods at a time. In the less severe cases twenty to thirty minutes every two or three hours may suffice, but in desperate cases the oxygen must be given as nearly continuously as possible, until relief is manifest. Cases requiring oxygen are usually benefited by the subcutaneous injection of the hydro-chlorate of **Strychnine**, $\frac{1}{60}$ to $\frac{1}{20}$ grn., every three or four hours, according to the urgency of the symptoms. If in spite of these two remedies the pulse increases in frequency and decreases in volume and power, **Digitalin**, gr. $\frac{1}{100}$, should be injected subcutaneously. I have seen excellent results from this method.

Dr. Werner[12] holds that the **Iodide of Potassium** is a specific remedy in the early stages of croupous pneumonia of adults, for if administered within the first twenty-four hours, it may act so as to abort the disease. He has tried it in eleven cases under these conditions and is satisfied with the results. Dr. Mueller, of the Posen military hospital, warmly praises its serviceability in the early stages of the disease, which he has confirmed in many cases.

Heat and **Cold** have each their advocates in the treatment of pneumonia. Thus, Dr. J. Eichberg[13] praises highly the effects of the hot bath used systematically in the treatment of pneumonia. At first he used it as an antipyretic, repeating it only when the temperature rose above 103° F., but subsequently repeated it every three hours, regardless of the temperature. It has a marked influence on the nervous symptoms, one of which is undefinable unrest, which it causes to disappear; the pulse improves, delirium subsides, the respirations diminish; the patient is enabled to sleep. The temperature of the bath is from 90° to 110° F., according to circumstances; it is continued for ten minutes. [93° F. is the indifferent point at the normal temperature. A bath, therefore, at 90° F., given to a patient at 103° F., would be a cold, not a "hot" bath. There are few patients who can take a bath at 110° F. without exhaustion. 98° to 105° F. would cover the author's intention.—Editor "Medical Annual."]

On the other hand Dr. Klein[14] recommends the employment of cold compresses. He describes the method as follows: A napkin large enough to reach from the top of the sternum to the stomach, and cover

the anterior and both lateral surfaces of the chest, is dipped in cold water at a temperature of 46° to 50° F., and applied to the chest. At the end of five minutes it is replaced by a cold one, and this treatment is continued for an hour. After a half-hour's rest three similar series are carried out. Two instances of their use are reported. He explains his results by the stimulation of the nervous and muscular systems. The dyspnœa is relieved because, with the deeper respiration, it becomes slower. Inasmuch as the treatment seems to be free from danger, and is acceptable to the patients, it should be made use of.

The ice-bag is another well known method of applying cold, but in spite of the vigorous advocacy that this method of treatment has received, it does not appear to be advancing in favour. If it is employed, the condition of the patient requires careful watching; if the feet become cold a hot-water bottle should be applied, and if the temperature fall below 99° F., and the hands become cold or the lips bluish, the bag should be removed.

Dr. Bishop's[15] remarks on the prevention of delirium in pneumonia, are worthy of careful consideration: "There is no disease in which it is more important to discount future events. An acute delirium in an alcoholic patient, when fully developed, frequently means a fatal termination. The feeble power of drugs to control this delirium, short of paralysing the patient with dangerous doses, is only too well known. If at the outset of pneumonia in an alcoholic case we foresee that the day of delirium is bound to come, we can by the free use of safe sedatives avoid or at least limit the delirium of the later days.

"The bromides are not sufficiently appreciated for their good qualities in acute disease. Their harmlessness has been so impressed upon me by the experience of treating a large number of epileptics, who took continually enormous quantities, that it has seemed desirable to consider their usefulness in other conditions. The reason that the bromides have so little reputation in emergencies, compared with morphine, chloral, hyoscine, and the hynotics, is that they have been given in too small amounts. Other drugs get more fair treatment. We push them until we accomplish the result aimed at, or until the appearance of some danger symptom. With bromide, single doses of from 5 to 30 grains are too often given, and then resort is had to some other expedient. A solution of bromide well diluted is not irritating to the stomach. It resembles very closely in its chemical and physical properties the saline salt solutions that we do not hesitate to put directly into the veins. It is not poisonous in any dose that any one would possibly apply. Its most glaring defects are the size of the dose and the slowness of the results. The fear of bromism that is con-

stantly before the mind rests upon a foundation chiefly of tradition. It occurs in patients who have been taking large quantities for a long time, and is the result not simply of the drug itself, but of mixed causes, such as gastric irritation and deficient elimination.

"If the alcoholic pneumonia patient is brought from the beginning of the disease under the influence of bromide in efficient quantities, the use of the more powerful and dangerous sedatives at a later period may be avoided. After delirium is once thoroughly established in pneumonia, bromide is a drug too mild to be efficacious. It should be begun in the very beginning of the disease, in alcoholics, and given freely, so that the patient shall get from a ½ ounce to 1 ounce in the twenty-four hours. Lives seem to have been saved in alcoholic cases by the free use of bromides from the beginning."

Dr. A. A. Smith[16] recommends a combination of **Codeine** and **Chloralamid** in the insomnia of alcoholic pneumonia, and advises the following formula :—

℞ Codeine grns. 2—4 | Elix. Chloralamid (grns. 20—℥ss) ℥ij

M. Sig.—A tablespoonful, to be repeated if necessary every two hours until three doses have been taken.

The supervention of pneumonia after ether narcosis, has recently attracted attention, and there is very good reason to believe that this form of pneumonia has been often overlooked. A possible source of infection in these cases is the mask or inhaler. Persons suffering from disease of the upper air passages were subjected to special dangers when etherised. The aspiration of mucus or food from the stomach is one of the causes of the pneumonia. Care should be taken not to cool the body surface by operating in too cool a room, or by applying moist towels over the body surface, and to use as little ether as possible.[17]

Dr. Griffith's[18] remarks on the diagnosis of pneumonia in children, deserve to be carefully borne in mind: "Among the conditions which render percussion difficult and unsatisfactory in childhood is the peculiar resiliency of the chest at this age. Unless the blow be light and percussion carefully performed, it is very easy to overlook a limited area of dulness which could easily have been found. It is as much or more the sensation of resistance to the finger which we must seek as it is any alteration of the sound. Too hard a blow makes the whole chest reverberate, and prevents the possibility of local differentiation. I find a series of rapid light blows the best method as a rule. But in spite of the greatest care it sometimes happens that a child will pass through an attack of pneumonia without at any time revealing a dul-

ness on percussion. Indeed, it often happens that the affected side is tympanitic rather than dull."

REFERENCES.—[1] "Brit. Med. Journ.," Jan. 1, 1898 ; [2] "Med. Rec.," Feb. 1, 1898 ; [3] "Lyon méd.," Aug. 23, 1891 ; [4] "La Sem. méd.," Feb. 27, 1892 ; [5] "Brit. Med. Journ.," March 5, 1898 ; [6] "Treatment," Aug. 26, 1897 ; [7] "Brit. Med. Journ.," Feb. 27, 1897 ; [8] Ibid., May 22, 1897 ; [9] "New York Med. Journ.," May 7, 1898 ; [10] "Brit. Med. Journ.," April 9, 1898 ; [11] "Phil. Polyclin.," Jan. 22, 1898 ; [12] "Indian Lancet," June 16, 1897 ; [13] "Med. Rec.," July 10, 1897 ; [14] "Amer. Journ. Med. Sci.," Oct., 1897 ; [15] "Med. Rec.," Aug. 14, 1897 ; [16] "New York Med. Journ.," May 28, 1898 ; [17] "Med. Rec.," June 18, 1898 ; [18] "West Lond. Med. Journ.," Oct., 1897.

PNEUMOTHORAX. *F. de Havilland Hall, M.D., F.R.C.P.*

Dr. S. West[1] has entered an able protest against the practice of abstaining from operative interference in cases of pyo-pneumothorax. He advocates that these cases should be treated as ordinary cases of empyema, viz., by **Drainage.** Incision may be required in the early stages of pyo-pneumothorax if the dyspnœa and symptoms be urgent, and not relieved permanently by paracentesis ; in the later stages, always if the fluid effusions be purulent, and sometimes when the fluid is serous and very chronic.

The success of the operative treatment of these cases is dependent upon the power of the lung to expand. In old standing cases where the lung is bound down by adhesions, or cases in which the lung is riddled with cavities, operative interference should not be attempted.

Dr. J. C. Simpson,[2] in directing attention to the great influence for good or evil that the position of the body exercises in some cases of embarrassed respiration, points to it as a constant example of the saying, "Position is everything." Whether the case be an instance of stertor of one kind or another, or of foreign matter in trachea or bronchi, or of some operation on the thorax, the salient features are the urgency of the dyspnœa, and the fact that it may be more or less completely relieved or fatally aggravated by the position in which the patient is placed or maintained. Nearly forty years ago, Dr. Bowles, in a paper on stertor, laid stress on the fact that it is "Physics, not Physic," that relieves these cases.

The question of position comes prominently forward in operative procedures on the chest, and this is especially the case in pyo-pneumothorax. If the patient suffering from this affection be turned on the sound side for the purpose of opening the chest, fluid may enter the sound lung during the process of anæsthetisation, and the patient may be drowned in his own secretions. Even if he escapes this danger, inflammatory action of a septic nature may be set up in

the previously healthy lung, owing to the entrance into it of the purulent secretions.

REFERENCES.—[1] "Brit. Med. Journ.," Nov. 27, 1897 ; [2] "Med. Press and Circ.," July 28, 1897.

POLIOMYELITIS. (See "Paralysis, Infantile Spinal.")

PREGNANCY (after Ventrofixation).

Arthur E. Giles, M.D., B.Sc., F.R.C.S.

Pregnancy following Ventrofixation of the Uterus.—Newman[1] reports two cases. The method employed was ventrosuspension as recommended by Howard Kelly, that is, fixation by means of sutures passed through the fascia of the abdominal muscles and peritoneum and then through the uterine cornu on its anterior surface. The first patient showed a slight tendency to abort at the third month, as indicated by cramp pains and a slight show. This subsided under morphia and rest in bed. During the last two months there was considerable soreness and dragging at the site of the sutures ; and for the last month there was an almost constant desire to micturate, night and day, but no dysuria. Labour and puerperium were normal. The second patient also was troubled with bladder irritation, and by occasional dragging pains at the site of the suture. Labour and puerperium were normal. He quotes Noble's statistics of eight hundred and eight cases of suspensio uteri by American operators, of which fifty-six became pregnant ; forty-three were delivered at term, six aborted, and seven were undelivered at the time of report. Of the forty-three cases delivered at term there were three in which forceps were used ; and four died. The operation proved to have nothing to do with the death of three of these.

Lapthorn Smith[2] collected two thousand five hundred cases of ventrofixation by forty-one first-class operators. The number of cases followed by pregnancy amounted to one hundred and forty-eight.

REFERENCES.—[1] "New York Med. Journ.," Aug. 14, 1897 ; [2] "Amer. Journ. of Obst.," July, 1898.

PREGNANCY (Complications of).

Arthur E. Giles, M.D., B.Sc., F.R.C.S.

Chorea.—Dakin[1] reports seven cases of chorea in pregnancy : all except one were under twenty-five years of age ; five of the seven were primigravidæ, and of these, two were single women. In all, the spasms first appeared during the first six months. All the patients had mitral bruits but one, and in this one it was found at the *post-mortem* that the mitral valve was affected. None of the cases made any attempt at spontaneous abortion. In only four of the cases were

the spasms very severe, which goes to show that chorea in pregnancy may in a fair proportion of cases be a mild disease. All but two were maniacal at one time or another; in cases one and three the mania did not appear till after delivery, the other three, who were maniacal before induction, became sane very soon after delivery, relapse taking place for a few hours in two of them. The choreic movements were not so easily affected by emptying the uterus; in only one did they subside before delivery. The temperature in both the fatal cases, as well as in two fatal cases of non-pregnant women recorded by the author, rose to 106·0° F. and over, just before death.

TREATMENT.—In severe cases, according to Dakin, induction of labour or abortion gives the best chance of safety. Drugs have little or no influence, while the woman is still pregnant, unless the attack is a very mild one. **Chloroform** was useful as long as the patient was anæsthetised, but only in a few cases did its effect in quieting the woman last much beyond the recovery of consciousness. In one case **Hyoscine** was used to control the mania, with excellent results, its action being decidedly superior to that of morphia. The prognosis seems to depend on the severity attained within a week or so of the first appearance of the spasms, since cases which are mild for a week after the beginning appear to be likely to be amenable to treatment. To this rule there may be serious exceptions, and the look-out for dangerous symptoms must not be relaxed. Mania must never be overlooked, however slight it may be in its beginning, and the induction of labour or abortion must be undertaken at once when the patient's mind begins to wander, however mild the actual spasms may be at the time. One of the seven pregnant cases afforded a good example of the value of this course. Induction must also be undertaken if the spasms are severe enough to keep the woman awake at night. The manipulations necessary for this purpose must be performed under an anæsthetic.

Tumours complicating Pregnancy.—Myomata occurring during pregnancy do not commonly warrant interference until after delivery.

As regards treatment, the author strongly advises ovariotomy, as giving the best results. This recommendation is signally endorsed by statistics, and is one in which we should strongly concur; with this addendum, that in our opinion, ovariotomy should be done as soon as possible, even in the case of small tumours.

Pruritus Vulvæ in Pregnancy.—It is well known that pruritus vulvæ, whether or not associated with pregnancy, is often most intractable; and it is well worth while trying the comparatively simple method suggested by Ruge, namely, antiseptic toilet of the

vulva. This must be carried out by the doctor himself, and must not be entrusted to the patient.

Fieux[2] reports a case in which this treatment was carried out with signal success. The vulva, vagina, and cervix were thoroughly washed with soap, all folds and creases in the mucosa being opened up; then the vagina was freely washed out with a weak sublimate solution, some 16 pints being used. This process lasted a quarter of an hour, and definitely cured the patient. Ruge usually performs the "toilet" two or three times, and applies to the vulva after each sitting an ointment of carbolised vaseline. Fieux saw his patient six weeks after the treatment by washing, and the pruritus had not recurred. There may be a purely nervous pruritus, but the satisfactory effects of Ruge's treatment seem, in Fieux's opinion, to imply that even in pregnancy where no objective local symptoms are present, the disease is often due to bacteria.

Death of the Fœtus.—Knapp[3] has suggested a way of determining whether this has occurred, viz., by the appearance of acetone in the mother's urine. In ten cases, taken at random, in which all the symptoms pointed to the death of the fœtus, tests of the mother's urine, made on several occasions before the expulsion of a more or less macerated fœtus, always indicated the presence of a marked quantity of acetone.

Chautard's solution of fuchsine (5 centigrammes of fuchsine to 100 grammes of water and decolourised by sulphurous acid) is recommended for the test.

To make the test, pour into a test tube containing 15 or 20 c.c. of the urine, a few drops of the reagent. If acetone is present, the urine instantly turns of a violet colour, the depth of the shade varying with the quantity of acetone present in the urine.

Another test for acetone is by Jaksch's method; this consists essentially in adding to the urine nitroprusside of sodium, and then either caustic soda or potassa to alkaline reaction. Acetic acid is then dropped into the fluid until the characteristic purple or violet colour develops.

REFERENCES.—[1] "Pract.," Dec., 1897; [2] "La Gynécologie," Feb. 15, 1898; [3] "Cent. f. Gyn.," No. 16, 1897.

PREGNANCY (Vomiting of). *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Hyperemesis Gravidarum.—While no fresh light has been shed on the pathology of hyperemesis gravidarum, several new lines of treatment have been advocated, for each of which a measure of success is claimed. Gallois and Bonnel[1] have tried the administration of **Oxygenated Water.** Hayem and Pinard had already advised inhala-

tions of oxygen for the same purpose ; but as the oxygen could not always be procured in gaseous form, they tried water containing 10 or more volumes of oxygen gas (peroxide of hydrogen, H_2O_2). They administered a tablespoonful in a litre of water given with wine and drunk during meals. They note that two tablespoonfuls of oxygenated water to a litre leads to an unpleasant metallic taste. They do not think the cure results from suggestion, because it did not follow when the dose employed was a teaspoonful to a litre. As a rule cure is complete in two or three days. Vomiting due to gastric disease is not improved, nor has the treatment any effect on heartburn, but in pure cases of vomiting of pregnancy they had only two failures.

Professor Tibone proposed subcutaneous injections of **Cocaine** in the epigastric region ; and A. Pozzi [2] has reported five cases in which this was tried with marked success. The dose is 0·01 grm. ($\frac{1}{6}$ grain) given twice a day before meals. In two of the cases the treatment was begun in the second stage of the vomiting, when there was fever and when cerebral symptoms had set in. In two cases the cocaine was given when the vomiting was still in the first stage, and in the fifth patient the author had to do with an exaggerated form of simple vomiting rather than with the incoercible type. In all the cases a great number of other means of treatment had been tried.

Antonchevitch [3] has tried the effects of a diet containing at least a full proportion of **Salts;** this plan is based on the view that there is a strict homology between the vomiting of pregnancy and vomiting from which animals suffer when deprived of salt in their food, by being fed on albumen artifically deprived of salts of potash and soda.

Geoffrey [4] has met with success from prolonged **Palpation** of the abdomen. He was led to try it on the ground that the vomiting was due to a reflex contraction of the pylorus and duodenum, secondary to and caused by a spasmodic contraction of the ilio-pelvic angle of the colon. The contraction is accompanied by hyperæsthesia. After two or three sittings the hyperæsthesia is relieved and the contraction subsides, and the vomiting disappears at the same time.

Lichtshein [5] advocates **Hypnotic Suggestion,** whilst Klein [6] relies on careful dieting by fluids alone, such as milk, thin soups, fruit juice and mineral waters. Tea, coffee, and cocoa are forbidden, as they increase the tendency to vomit.

In the "Semaine médicale" **Spraying** of the entire length of the spine with methyl chloride is highly recommended ; but no particulars are given of cases in which this was tried.

In a discussion on hyperemesis gravidarum at the Montreal meeting of the British Medical Association Jewett [7] stated that he had

had good results from the administration of **Chloral** and the **Bromides** by the rectum in maximum doses of 120 grains a day, and also from the application of cocaine to the cervix and within the cervical canal. Several of the speakers, however, gave it as their experience that in intractable cases nothing short of premature induction of labour was of any avail.

REFERENCES.—[1] "Bull. gén. de thérap.," March 23, 1898; [2] "Arch. di Ost. e Gyn.," June, 1897; [3] "La Gynécologie," Oct. 15, 1897; [4] "La Sem. méd.," v., 39, 1898; [5] "Med. Record," July 2, 1898; [6] "Zeits. f. Geburts. u. Gynäk.," vol. xxxix., pt. 1, 1898; [7] "Brit. Med. Journ.," Oct. 23, 1897.

PROCIDENTIA ANI. (See "Rectum, Prolapse of.")

PROSTATE GLAND (Disorders of). *E. Hurry Fenwick, F.R.C.S.*

Seminal Vesiculitis and Prostatitis in Gonorrhœa.—C. F. Marshall[1] reviews the opinions of various surgeons on this subject. Prostatitis as a complication of gonorrhœa is described in all text-books, but inflammation of the vesiculæ seminales is usually more or less ignored.

Columbini[2] gives the following figures, based upon a study of four hundred cases, all of which were examined per rectum. Of the four hundred cases, one hundred and forty-one had either prostatitis or vesiculitis, or both. This makes the frequency about 35 per cent; that of prostatitis 34 per cent., and vesiculitis about 13 per cent.

Jordan Lloyd,[3] of Birmingham, drew attention to the frequency of seminal vesiculitis (or spermato-cystitis) in 1889.

Fuller,[4] of New York, quotes twenty-two cases of seminal vesiculitis, fifteen of which were due to gonorrhœa, the rest being tubercular. Fuller's conclusions are as follows: (1,) Seminal vesiculitis is the cause of chronic urethral discharges in a certain proportion of cases: (2,) In about a third of the cases it is tubercular; (3,) It is most important to differentiate between gonorrhœal and tubercular cases owing to the difference in prognosis and treatment. In tubercular cases the tenderness of the vesiculæ is less, and the induration more than in the other cases. The treatment described later for vesiculitis aggravates instead of improving tubercular cases; (4,) Vesiculitis is more common in subacute or chronic gonorrhœa than in acute cases; (5,) In some cases it may be due to sexual excesss or masturbation, without any gonorrhœal infection. The symptoms of vesiculitis are the same as those given as characteristic of prostatitis, of vesical irritability, and of inflammation of the neck of the bladder, and a correct diagnosis can only be made by digital examination per rectum. Jordan Lloyd thinks that in most cases where prostatitis is

supposed to complicate a urethritis, it is the seminal vesicles which are affected and not the prostate.

Acute vesiculitis occurs usually during the second or third week of gonorrhœa, and begins with deep throbbing pain in the perineum and pelvis. This is accompanied by increased frequency of micturition and vesical tenesmus. As the bladder distends the pain increases, and is felt most at the end of the penis at the end of micturition. Defæcation is also frequently painful. The urethral discharge becomes less, or ceases altogether when these symptoms arise. The most important sign is the swelling felt per rectum, which occupies the base of the bladder and extends beyond the reach of the finger. Jordan Lloyd thinks it impossible that the prostate in its capsule could swell to this size in a few hours, and considers the swelling due to inflammatory infiltration of the connective tissue between the tubules of the vesiculæ.

Chronic vesiculitis gives rise to variable symptoms, among which are intractable gleet, not depending on stricture, and intermittent in character; recurrent irritability of the bladder; seminal emissions which are sometimes rusty coloured, and slightly purulent. Per rectum in chronic cases, the vesiculæ can be felt, distended and hardened, and can be easily differentiated from the prostate. Some cases end in suppuration giving rise to deep-seated abscesses. Jordan Lloyd is of opinion that most deep-seated abscesses consecutive to urethritis are not prostatic but vesicular in origin.

According to Fuller, the contents of the vesiculæ often contain a gelatinous material, with some blood and pus cells, and occasionally bloody emissions occur. According to him, the condition when of long-standing often gives rise to impotence.

TREATMENT.—The treatment of the acute form is best carried out, as in prostatitis, by rest in bed, low diet, leeches to the perineum, morphia or belladonna suppositories, warm fomentations, and avoidance of constipation. The urethra should be left alone. If suppuration occurs, the pus should be evacuated by a perineal incision guided by a finger in the rectum. Incision per rectum is not good, because the wound cannot be kept clean, and the parts cannot be explored as they can by perineal incision. Fuller thinks cases requiring aspiration or perineal incision are uncommon, and recommends a plan of regularly emptying the contents of the vesiculæ by digital manipulation. The bladder being full, and the patient in a stooping position, the forefinger is introduced into the rectum, and counter-pressure made above the pubes with the other hand. The distended vesicles are felt for, and their contents pressed out into the urethra. The patient then urinates and the urine is examined. Gelatinous masses, pus and blood-cor-

puscles, dead spermatozoa, and epithelial cells are usually found. This treatment is repeated once a week till the tonicity of the vesiculæ is restored. If signs of acute inflammation appear during treatment, the latter should be suspended. The duration of treatment varies from one month in subacute to many months in chronic cases. Fuller claims to have cured twelve cases out of fifteen by this means. He is of opinion that the average forefinger is long enough for the purpose, and that the resistance of the perineal muscles can be overcome by gradual pressure.

The prognosis of acute cases is good; that of chronic cases depends on the duration of the disease, but is usually good also.

G. K. Swinburne,[5] writing recently on this subject, is of opinion that the vesiculæ and prostate should be examined in cases of chronic urethritis, and when the posterior urethra is affected. He draws attention to the importance of the presence of live spermatozoa in the urine after expressing the contents of the vesiculæ, as showing that the vesicular mucous membrane still secretes the proper fluid for preserving them. He thinks Fuller's method of expressing the contents of the vesicle a good one, and also points out that it is a test whether the ducts between the testis and the seminal vesicles are patent. He points out that sometimes at the beginning of treatment little or no material is expressed, but this increases as the treatment is continued.

Dr. Wingfield Ayres[6] has found seminal vesiculitis (or, as he calls it, "gonecystitis") in thirty cases out of one thousand and fourteen patients with genito-urinary disease.

He (Ayres) agrees in the main with Fuller and Swinburne, but adds syphilis as another cause of this affection. As regards stricture following masturbation or sexual excesses, we are not aware of any facts to support this statement.

Whether the vesiculæ are implicated in urethritis as often as Columbini asserts is doubtful, but at any rate seminal vesiculitis is a condition which has not received much attention, and is a complication which ought to be looked for in all cases of gleet which do not yield to the usual forms of treatment. In the hurry of out-patient practice, it is difficult to examine all cases of chronic urethritis per rectum for vesiculitis, but if all cases were so examined no doubt further light would be thrown on the subject. (Compare article on "Gleet.")

On the Surgical Treatment of Enlarged Prostate.—Charles W. Cathcart[7] considers the opinions prevailing in regard to prostatectomy, castration, and vasectomy in the treatment of prostatic hypertrophy.

With reference to the recorded mortality of the operations Mansell Moullin, in 1892, collected from the literature a series of ninety-four supra-pubic prostatectomies for enlargement of the prostate ; the percentage of deaths was over 20 in all, but was 25 for the first half of the cases and 15 for the second half. Many of the deaths were in patients in whom, from the long-continued difficulties in micturition and frequent attacks of cystitis, kidney mischief was to have been expected ; in others no details are given as to the previous history of the patients ; but it is fair to assume that the mortality of supra-pubic cystotomy as an operation in selected cases, and when done in two stages with efficient drainage would be very much less ; how much less we cannot definitely say, for since the introduction of castration for enlarged prostate comparatively few instances of prostatectomy have been published.

In 1895 White published a table of one hundred and eleven cases of double castration for enlarged prostate, with a total mortality of 18 per cent. He saw good reason for excluding a certain proportion of the deaths as either not having been fairly attributed to the operation, or as having occurred in patients whose cases were not suitable for the operation. When these cases were excluded, the mortality of double castration was reduced to 7·1 per cent. Cabot has attacked him for so doing, and takes up also a strong position in favour of prostatectomy as applicable to more cases than castration, especially when bladder drainage is desirable.

Bruns has added a list of thirty-seven to the one hundred and eleven of White's table, with a total mortality of 15·5 per cent. As the figures stand, therefore, in Bruns's and Mansell Moullin's table, there is an advantage of 5 per cent. in favour of castration, and it is perhaps fair also to consider that as castration is an easier operation than prostatectomy, in the first rush of its popularity it may have been more often inappropriately performed than the other.

The causes of the twenty-three deaths in Bruns's full list were pyelonephritis in nine cases ; pneumonia in two : exhaustion in two ; acute mania in three ; and in the remainder death did not seem due to the operation. As to the efficiency of the two operations, there is no doubt that both are generally very satisfactory.

The psychological effect of double castration is still a moot question. A considerable number of the patients have shown mental weakness, and a few have become insane. Many of these cases have been weak-minded before the operation ; in some the shock and septic poison will satisfactorily explain the mental change, but there still remain others which cannot be explained in either of these

ways. We may provisionally express the opinion that the operation of double castration does specially tend to produce a condition of mental weakness in a small proportion of cases, but that only in a very few is this more than temporary. In a few days it generally passes off completely.

A consideration of the results of vasectomy seems to show that the operation produces all the effects on the enlarged prostate that castration does, with less risk to the patient, and it seems to be steadily growing in favour.

The author believes that when surgical interference is first called for on account of increasing difficulties in the use of the catheter, a progressive quantity of residual urine, or recurrent attacks of cystitis, prostatectomy and vasectomy (perhaps of one side only to begin with) may be offered for the patient's choice, while as yet there is no reason to fear kidney disease. Either at this stage may be said to have a very small mortality (perhaps 3 or 4 per cent.).

Prostatectomy would probably have the slightly higher mortality of the two, and the effects of the operation could not be guaranteed as permanent, but it would leave the patient with full sexual power. Vasectomy with a slightly lower mortality would at this stage cure not only the condition but the tendency to it ; but the patient would be sterile if both sides were done, although probably not impotent for some years to come. Vasectomy would be especially indicated when the prostate could be felt from the rectum to be enlarged as a whole, when it was soft and succulent rather than hard and fibrous, and when there was no reason to believe from information gained in passing the catheter or from the cystoscope that the chief cause of obstruction was a marked valve-like obstruction at the neck of the bladder. Prostatectomy, on the other hand, would be especially indicated when these conditions were reversed.

Remarks on the Surgery of the Vas Deferens relative to some Urinary Disorders.—Reginald Harrison [8] in an article with the title given above, agrees that neither vasectomy nor orchectomy can be expected to be of any avail in prostate hypertrophy where the gland has taken on marked fibrotic changes.

There can be no doubt that castration is a serious undertaking in the case of many persons of advanced years, enfeebled by illness, as compared with vasectomy, and the risk connected with it is not inconsiderable. On the other hand if vasectomy is performed under certain conditions it is not open to these objections. Though the resection of a part of the seminal ducts is a minor proceeding it is better not to operate upon both canals simultaneously, but on two

separate occasions with a short interval between. That physiological effects of an active kind, not limited to the urinary organs, sometimes follow upon the simultaneous removal of the testes, and less rarely on the simultaneous resection of the vasa, there can from recorded cases be no doubt of. In some they have taken the form of cerebral disturbance, and in others of mental decay, which have marred the good effects of any structural changes in the prostate which have also followed. The author has neither seen nor heard of such results as these being observed where both vasa were not divided at the same time.

REFERENCES.—[1] "Treatment," July 28, 1898; [2] "Giorn, ital. delle mal. ven.," No. 5, 1896; [3] "Brit. Med. Journ.," April 20, 1889, and "Lancet," Oct. 31, 1891; [4] "Amer. Journ. of Cut. and Gen.-Urin. Dis.," Sept., 1893, and April, 1897; [5] Ibid., March, 1898; [6] "New York Med. Journ.," May, 14, 1898; [7] "Scot. Med. and Surg. Journ.," Dec., 1897; [8] "Lancet," Jan. 8, 1898.

PROSTATE (Tubercle of). *E. Hurry Fenwick, F.R.C.S.*

The Forms which the Prostate assumes in Urinary Tuberculosis.—In a series of clinical lectures upon the rectal contour of a thousand prostates, Mr. Hurry Fenwick made the following remarks on tubercle of the prostate:—

No surgical disease of the urinary tract so misleads one by its vagaries, or so baffles one in our well-meant efforts to relieve its active phases, or so fiercely resents our instrumental interference, as urinary tuberculosis. No disease demands greater judgment in its treatment, none obtains less. The reasons for all this rest in the insidiousness of the onset of the disease, in its marked susceptibility to septicity, and in the power which it possesses of imitating every other disease of the urinary tract. With the exception of the enlarged prostate of old age, I know of no disease of the urinary tract, from urethritis to renal carcinoma, which this arch mimic does not simulate, and that very closely. But a clue can be obtained by rectal and testicular examination in a large percentage of the male cases in the very earliest onset of the symptoms.

In one hundred and fifty-seven male patients with urinary tuberculosis who have been under my care, a typical deposit was found, on their first visit, in the epididymis in thirty-three cases (21 per cent.), or in the epididymis and prostate coincidently, in thirty-eight cases (24 per cent.); or in the prostate and seminal vesicle in five cases (3 per cent.); or in the prostate alone, in six cases (3 per cent.); or in the prostate and bladder, the latter cystoscopically, in ten cases (6 per cent.). If we add these together it will be seen that a deposit

could be detected by the finger in 58 per cent. of the cases on their first visit.

During the course of the disease the chance of its detection is still further increased, for 80 per cent. finally present tangible evidences of tubercle in the lower genito-urinary organs, and in only very few instances does the patient pass through all the stages of the disease and die, without the epididymes or the prostate becoming affected. A careful examination of these organs is obviously, therefore, of the utmost importance.

What are the Forms which the Prostate assumes in Tubercle?—I regret to assert that our text-books are either indefinite or inaccurate upon this point. Some teach us to expect "*shotty*" prostates, that is, the feeling of small shot-like hardness over the prostatic surface. It is rare indeed to find this condition (3 per cent.), and it augurs badly for the patient. Others describe massive indurations of the prostate and vesiculæ as being common. This is another infrequent stage in actual work (5 per cent.), and may be taken as indicative of septic inflammation in addition to tubercle. Others, again, point to the vesiculæ seminales as being most often infiltrated. This is perhaps truer, for the vesiculæ may become affected before the prostate has become implicated (14 per cent.), but it is not common in the early stages.

The cause for this variety of opinion is clear to one watching and examining the same case or cases year after year. Such an one will realise that the deposit passes through a variety of stages, as it does in other parts, and that according to the stage so is the character and contour of the deposit in the prostate, vesiculæ, and testes, and the text-book conditions just enumerated are merely stages in the life history of the deposit.

Let me illustrate, for it will enable us to understand better if a rapid sketch is given of those changes which are noticed in the contour of the prostate during the life history of a tuberculous deposit.

We meet with tuberculous deposit in the prostate under three clinical conditions: In young males, who merely ask one's opinion about the nature of a lump which they have noticed in one or other of their epididymes; or in young males, who consult one for the relief of symptoms similar to those produced by stone in the bladder; or in the adult male, who complains of symptoms like those of stone in the kidney. Let us glance at a couple of examples.

CLASS I.—*Tubercle appearing co-incidentally in the Prostate and Epididymis.*—Take an uncomplicated case first: A young man aged

seventeen to twenty, with no history of masturbation or venereal disease, who has never been sounded for stone or catheterised or cystoscoped. Such, clinically, is a virgin case. He presents himself with a painless, rounded, marble-sized lump in the lower end of one or other of the epididymes (*Fig.* 70). In the corresponding lobe of the prostate will probably be found an exact counterpart of this boss, partially buried in the upper third or middle third of the lobe near the sulcus. This roundish hard body is insensitive; the rectal mucous membrane covering it glides over it healthily. One need have no hesitation in diagnosing it as tubercle. Every lump in the epididymis is not necessarily tubercle, but such an *isolated knot* in a prostatic lobe is tubercle, if it accompanies a knot in the corresponding epididymis. With these conditions there may be no symptoms; they will develop in due course—months, even years after.

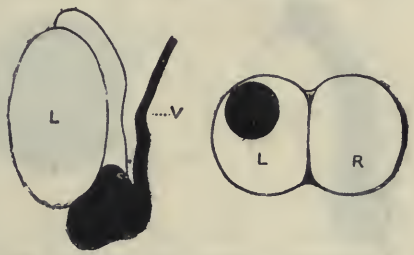

Fig. 70.—Deposit of tubercle in left epididymis and left lobe of prostate.

CLASS II.—*Tubercle appearing co-incidentally in Prostate and Bladder.*—Take another virgin case: A young man aged seventeen to twenty. He comes complaining of pain at the end of his penis, undue frequency of micturition, and occasional attacks of hæmaturia, the urine, when bleeding is absent, being lightish and murky from pus. On examining per rectum you find a hard knot buried in one of the lobes of the prostate (*Fig.* 71). This is tubercle, and the cystoscope will demonstrate the bladder base to be affected as well. The corresponding epididymis will become in time the seat of a similar indolent knot.

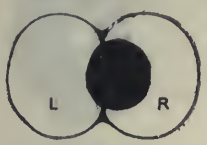

Fig. 71.—Deposit of tubercle in right lobe of prostate.

Tubercle starting in Inflamed States.—But suppose this indolent epididymal knot becomes inflamed, or suppose it was actually started by an acute inflammation such as that produced by gonorrhœal or traumatic epididymitis, in a man with strongly-marked tuberculous tendencies. Shall we find a small buried knot in the corresponding lobe of the prostate? No. In such a case the prostate generally assumes a condition similar to that in the epididymis, and if we examine when the inflammatory condition of the prostate is at its height, we shall be

surprised at the resemblance. The deposit is large, irregular, and tender. It causes the entire prostatic lobe to project sharply on to the rectum, and the finger detects it at once (*Fig.* 72). The mucous membrane of the rectum may become adherent to it, puckered, or even softened at one spot (*Fig.* 73). The inflammatory wave may even spread on the corresponding vesicle, and the united mass of indurated exudation forms a thick projecting cake on one side of the bladder base. Let us, however, remember that inflamed tuberculous deposits are always the most difficult to diagnose, and it would be wise for one to hesitate before pronouncing definitely such a condition as being tuberculous.

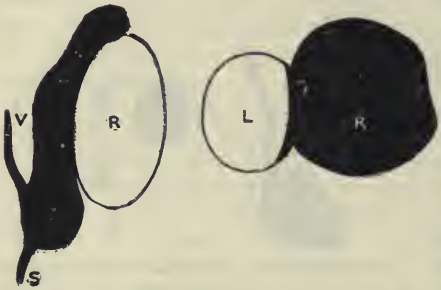

Fig. 72.—Deposit (inflamed) of right epididymis and right lobe of prostate.

Years ago it seemed to me that these inflammatory cases would run a much more rapid course, for I argued that septicity must carry the essential elements of the disease far and wide. I now see that this view is incorrect. I am inclined to believe that the inflammatory exudation retards the progress of the disease, for it often erects a wall of dense material round the tubercle, and I submit the same effect is produced by that tough inflammatory exudation which we sometimes encounter around a tuberculous kidney.

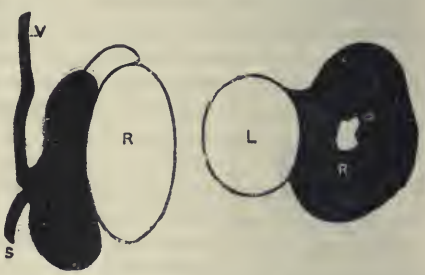

Fig. 73.—Same as in *Fig.* 72, but right prostatic lobe deposit is softening at *R*.

The Absorption of Tubercle in the Prostate and Vesiculæ Seminales.—I may probably be enunciating a readily-accepted truth when I assert that well-marked tuberculous deposits in the prostate and vesiculæ may absorb and disappear, especially if they have been inflamed, or if *the bladder has been absolutely stripped of its mucous membrane.* They may also diminish in size and cretify, or they may remain for months, even years, the same in contour.

As an illustration, I choose the following out of twenty others: A young man aged twenty-three—a virgin case—consulted me in 1886 for tubercle of the right epididymis. There was a knot in the upper

Fig. 74.

Fig. 75.

third of the right prostatic lobe (*Fig.* 74)—no urinary symptoms. In 1889 the epididymis had changed its contour, and I found that the knot in the prostate was feelable in the lower third (*Fig.* 75). (I have noticed that the knots apparently change position, probably the wave passes steadily through the lobe.) In March, 1890, he had right renal colic and hæmaturia, when in Australia, *i.e.*, clinical evidence of right renal invasion. In 1892 the prostatic deposit was minute (*Fig.* 76). In October, 1897, the deposit in the prostate was pin-head, but the base of the left vesicle* had become involved (*Fig.* 77). Bladder symptoms had become apparent.

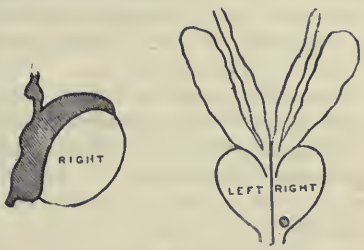

Fig. 76.

Fig. 77.

Such deposits rarely, I believe very rarely, suppurate on their own initiative, but much depends on how they are treated. But here are two important points. The prostatic contour and consistence are altered

* This route, from one lobe to the base of the opposite vesicle, is not uncommon in the more protracted cases of indolent tuberculosis.

greatly by the absorption of deposits. The lobes become flattened, their consistence leathery, and their outlines confused; the sulcus, moreover, often deepens into a trough. Many of them feel like a sheet of thick parchment. Hence it is that we may examine a given prostate, and say that there is *no* tuberculous deposit to be felt in it. But it may have been there, and only practice and observation will enable one to suspect that he is touching a prostate which has been severely invaded. We are often helped to an accurate conclusion by the nodule in the epididymis, which does not become absorbed like that in the prostate.

The *second* important point is this, and I regret to have to record it: If tubercle has once infiltrated the prostate, it is generally relentless. We may take comfort to ourselves when it has become absorbed, and we may assure our patient that he is cured, but this is not so. Clinical work teaches us that the disease has gone on to invade other areas beyond our fingers' reach, spreading along definite tubercle routes, and that it will appear in due course in the bladder or kidneys. The duration of life, however, depends mainly upon the implication of the mucous membrane.

Before indicating the highways and byways of tuberculous invasion, let us notice how my statement of the progress of a prostatic deposit explains the differences in the description given in the text books of its contour. Stress should be laid upon the fact that these differences merely represent stages in the progress or life history of the deposit. But this is not of much account; what we need to know as practitioners is, What is the form most commonly met with?

The form I have most frequently encountered is that of an irregular knot, of the size of a toy marble or a cherry-stone, partially buried in the substance of the lobe and easily defined. It is dense but not stony hard. I have met with this condition in 62 per cent. of my cases.*

Routes taken by Urinary Tubercle.—Urinary tubercle invades the different sections of the urinary tract, along certain regular highways. It commences most often in the epididymis (33 cases in 158). It is

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* The other forms were:—

Swollen Single Lobes	2 per cent.
Shotty-surfaced Prostates	3 ,,
Enlarged Gland at Upper Angle of Lobe	3 ,,
Massive Prostate (the blending of Vesiculæ and Prostate into an indurated Cake)	5 ,,
Early Tuberculous Vesiculæ Seminales	14 ,,
Absorbed Parchment-like Prostates	11 ,,
Small half marble Deposits in one or both Lobes	62 ,,

next found in the corresponding lobe of the prostate, next in the base and around the ureteral orifice of the corresponding side of the bladder, and, lastly, in the middle and lower third of the corresponding kidney near the pelvis.

Thus "the rule of the road" is, a right epididymal knot leads to a right prostatic knot, to a loss of surface around the right ureteral orifice, and finally to a deposit in the right kidney. An epididymal knot sometimes short-circuits to the kidney of the same side, along the lymphatic tract (?) of the spermatic and perirenal veins. No matter whether the deposit absorbs in one place, the wave travels persistently on to implicate another area, and it usually keeps to the side it started on.

The advantage of this to the clinician and operator is great. If a patient who has no venereal history, who has never had any difficulty in micturition, and who has never had any urethral instrumentation, complains of pain in one kidney, and you find an indolent knot in the epididymis or a buried knot in the prostatic lobe of the same side, you diagnose tubercle of the kidney, and seek confirmation of this in the urine.

Byepaths.—In addition to the main route taken in the above case, there are, of course, two byepaths of invasion. There is one running from the right prostate to the left prostate or left vesicle and to the left testis, and another passes up along the other ureter to the other kidney, if the patient lives long enough.

Let us formulate the rule. Usually, the kidney first attacked in ascending tubercule is the one on the same side as that in which the deposit first appeared in the epididymis or prostatic lobe. Supposing the tubercle first starts in the kidney, does it follow the down route or the same side? Usually it does; for instance, right kidney, right ureteral orifice, right prostate, right testis, or the short cut, right kidney to right epididymis.

Cross route Tubercle.—But this rule of the road is too absolute. It does not, unfortunately, hold in every case. In 18 cases out of 100 the tubercle appeared to cross over for some unexplained reason. Thus the deposit might be in the left testis and cross to the right kidney, or in the right testis and cross to the left prostate. We must remember, then, that in a small proportion of cases (18 per cent.) tubercle crosses.

Comments.—Before we entertain the idea of employing an instrument of any description, or of giving any sort of diagnosis in the urinary disease of an adult, we should examine the epididymis, the prostate, and the bladder base per rectum. Suppose we detect a tuberculous

knot in the prostate. The frequency of micturition, the penile pain at the end of the act, and the intermittent admixture of blood in the urine are all fully explained by our discovery. We next control our diagnosis with a microscopical examination for the bacillus; and we lay it down as a hard and fast rule, never to wash out the bladder if urinary tubercle is found, although the presence of pus in the urine may tempt us strongly to do so. Washing with any form of sterile fluid, be it water, boric acid, or iodoform wash, will relieve in the early stages, but the patient pays dearly for his relief.

We cannot fail to introduce septic matter, and the conditions for the colonisation of the microbes we introduce or awake to activity are of the three most potent: A congested or ulcerated mucous membrane susceptible to invasion, a neutral or faintly acid urine, and a small amount of residual urine.* I say definitely, after fifteen years' study, a patient with a tuberculous bladder who has that viscus washed out has his kidney destroyed sooner and more thoroughly than he whose bladder is left alone.† Again, one may be so misled by the symptoms as to believe our patient has stone. If we find a tuberculous knot in the epididymis or prostate we should not sound. I will admit we may not harm the patient, but we shall do him no good, and our procedure will cause him unnecessary and intolerable pain.‡

I have had excellent opportunities of examining healthy bladders with the electric cystoscope, shortly after they have undergone the operation of sounding and sucking by means of Bigelow's evacuator for suspected stone. Patches of deep red infiltration (traumatised areas) are seen over the base and sides. Theoretically, such injuries should favour the spread of tubercle.

Lastly, a certain small proportion of patients suffering from tuberculous prostates complain greatly of difficulty of urination and of narrowness of their stream of urine. This is due to prostatic swelling, but it tempts one to try the urethra for stricture. If we must pass a bougie, it would be wise to use a solid aseptic steel, No. 10 E., with all possible gentleness. My reason for this is, if we employ an elastic bougie in such a case it will probably be abruptly

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* All tuberculous bladders after the first year are slightly atonied, and contain a drachm or more of irritating puriform urine.

† I may remind the reader that there are single ulcers of a non-tuberculous character that are benefited by washing or curettage, but these are only really diagnosable by the cystoscope.—Author. "The clinical significance of the simple solitary ulcer of the bladder." —"Brit. Med. Journ.," May 6, 1896.

‡ There is no urethra so hypersensitive or so intolerant of instrumentation as the tuberculous prostatic urethra.

stopped at the opening of the membranous urethra, for the tuberculous deposit not infrequently throws the opening of the membranous urethra higher than normal, but it also induces a veritable spasm of the compressor urethræ, which the point of the bougie aggravates. Such an obstruction will confirm one in the belief that the case is one of stricture, but the prostate knot negatives this view.

A Reservation.—I have said that obscure renal pain is sometimes explained by finding a tuberculous knot in the prostate, and that given such a knot in the epididymis or prostate and a fixed pain or a renal colic* in the kidney of the same side as the knot, that kidney is tuberculous, *if the patient has never strained to urinate, and that no instrument has traversed his urethra.*

The kidney may not be tuberculous if the patient has strained repeatedly to pass urine, or if he has had his bladder washed out. If he has strained repeatedly to pass water, one ureter and renal pelvis may have become slightly distended by backward pressure, and this in itself causes an aching kidney. If washed, mild ascending pyelitis or patchy nephritis of ascending microbic infection may be present without tubercle. Such septic conditions cause aching kidneys.

PRURITUS. *T. Colcott Fox, M.B.*

As a contribution to our knowledge of the pathogeny of pruritus, Sarbo[1] records two cases of generalised pruritus, at first local, occurring as a prodromal symptom in *general paralysis* without any other skin trouble. Sarbo considers the pruritus due, not to a general toxæmia, but to a projection of the disease of the central nervous system.

Patrick Manson notes the occurrence of marked pruritus in the *sleeping sickness of the Congo*, but whether this symptom is here of central origin or due to a toxæmia, is unknown.

Morel Lavallée[2] has a long article on the *Treatment of Pruritus*, but we can glean but few facts which would be new to our readers. He quotes Brocq's recommendation for *senile pruritus*:—

℞ Bromide of Sodium	grms. 8	Acetate of Sodium	grms. 4
Iodide of Sodium	grms. 4	Infusion of Gentian	grms. 60
Salicylate of Sodium	grms. 8		

A teaspoonful in water after each repast.

In the evening warm **Sublimate Lotion** (1 in 2000), or **Phenic Acid**

* The pain is "fixed" in the kidney in 80 per cent. of kidneys affected, and the pain is a true renal colic in 20 per cent. of kidneys affected by tubercle. The difference depends not so much on the thickening of the ureters as on the blockage of this narrowed channel by slough, or mucus, or phosphatic *débris*.

(1 in 20), is applied over the body, which is subsequently powdered with a mixture of **Salicylate of Bismuth** and **Starch,** or anointed with :—

℞ Lanolin	grms. 30	Guaiacol	grms. 6
Salicylic Acid	grms. 2	Menthol	grms. 0·60

Penzoldt's lotion is also given :—

℞ Distilled Water	grms. 450	Snowy Phenic Acid	grms. 5
Glycerin	grms. 20	Hyposulphite of Sodium	grms. 30

Bath Pruritus.—Stelwagon[3] brought forward this subject at the meeting of the American Dermatological Association. By the term "bath pruritus" was meant the itching or burning, often almost intolerable, from which some persons suffer for a period of ten to thirty minutes after a bath. He did not think it was due to temperature variations. It may be observed after open-air bathing in either fresh or salt water, or after the house bath. The treatment was unsatisfactory. Stelwagon had seen relief from gently rubbing in a **Glycerin Lotion,** or the free use of a dusting powder. White had controlled one case by **Alcohol Spraying** on coming out of the bath. Gilchrist saw relief given by the application of dilute **Ammonia Water.** Hardaway suggested a weak solution of **Menthol in Alcohol,** or the familiar **Calamine** and **Zinc Lotion.**

Von Mars[4] says in three cases under his own observation he noted that the greater labia were, probably from changes due to swelling or atrophy, in a condition of entropion, hairs being seen turned inwards on the vestibule and clitoris. When the hair was carefully trimmed the pruritus at once ceased. Such treatment, of course, would be difficult to carry out for long, as the stumps of the hair soon became irritating, and Von Mars therefore suggests that a thin elliptical piece of skin be excised from the outer limits of each labium majus, so as to produce an artificial ectropion of the labia.

REFERENCE.—[1] "Pestu Med. Chir. Presse," No. 37, 1897; [2] "Rev. de thérap. méd. chir.," Sept. 30, 1898; [3] "Journ. Cut. and Urin. Dis.," Sept., 1898; [4] "Monats. f. Geburtsh. u. Gynäk.," April, 1897.

PRURITUS VULVÆ. *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Etiology.—The numerous cases of this troublesome affection are thus classified by Herman[1]: (1,) Adventitious, due to pediculi, dirt, worms, pessaries; (2,) Skin diseases—eczema, herpes, furuncle, follicular, urticarial, and diabetic dermatitis—which has been shown to be due neither to saccharine urine nor to sweat; (3,) Irritating discharges—gonorrhœa, cancer, senile endometritis—and also cases where no visible discharge is seen; (4,) Venous congestion, due to heart, lung, or liver disease; (5,) Nervous.

TREATMENT.—This varies according to the etiological factor found. Herman makes the following recommendations: In class 1 he advises **White Precipitate Ointment** for pediculi; absolute cleanliness and changing of material of pessary. Class 2: Eczema usually affects fat elderly women and those who are pregnant; possibly it depends on a parasitic micro-organism; in diabetes it is specially frequent. Treatment in the former consists in **Warm Hip Baths** with **Wright's Liquor Carbonis Detergens** added, and powdering the parts with **Boric Acid.** In the latter general treatment is required. Herpes zoster is not amenable to any kind of treatment. Follicular pruritus is best treated by squeezing out the contents of the follicles and applying a germicide lotion, such as **Corrosive Sublimate** 1 to 2,000. Urticaria is very rare. Class 3: Irritating discharges should be treated by **Sedative** and **Antiseptic Washes** to the vagina, followed by sedative powders to the vulva, such as a **Saturated Solution of Borax,** and **Dermatol Powder** and **Boric Acid.** When these fail, a strong **Carbolic Acid Lotion,** 1 to 7, will in some cases completely cure or give greater relief. Class 4: Pruritus is found in pregnancy and in corpulent persons with varicose veins, and those suffering from heart, lung or liver disease; the treatment is practically the same as in class 3. In class 5, pruritus in aged women is sometimes a symptom of degenerative changes in the nervous system, and treatment usually fails.

A comparatively simple plan of treatment is that recommended by Heidenhain.[2] He applies compresses wet with a hot solution of a tablespoonful of **Tannin** in a quart of water. The vagina is previously douched with an antiseptic solution, and a wad of cotton wet with the tannin solution is laid between the labia. This is done every night.

Ruge[3] practises a thorough disinfection of the genital tract. With **Antiseptic Soap** and a nail-brush he washes the vulva and the vagina, taking pains to reach all the folds and recesses of the latter. He then douches out the vagina with a rather strong **Perchloride Solution,** until all organic fragments have been cleansed away. Finally, an ointment of **Carbolised Vaseline,** 3 to 4 per cent., is applied with the fingers. He claims speedy and permanent results from this mode of treatment.

Dirner[4] believes that pruritus vulvæ, when due neither to diabetes nor to the micro-organisms present in an irritating vaginal discharge, is really a dermatoneuritis, as described by Sänger, due to subacute inflammation of the papillæ and fibrosis of the bodies of Pacini, Krause, and Meissner, and can, as a rule, only be cured surgically.

In illustration of this view he records the case of a multipara aged

sixty-five years, who had reached the climacteric twenty years before, and who had suffered for three years with itching and burning of the external genitals so severe that she was unable to sleep. The clitoris and labia majora were dry and cracked. There was no sugar in the urine. As medicinal treatment failed to give relief, he excised the affected tissue according to Sänger's method, from the mons to the fossa navicularis, including the clitoris, the wound being closed with sutures of silver wire and covered with iodoform-collodion. Primary union occurred, and the patient was discharged cured at the end of two weeks, itching having entirely ceased.

REFERENCES.—[1] "Brit. Med. Journ.," Nov. 20, 1897; [2] "Berlin. klin. Woch."; [3] "Zeits. f. Geb. u. Gyn.," vol. xxxiv, p. 355; [4] "Cent. f. Gyn.," No. 5, 1897.

PSORIASIS. *T. Colcott Fox, M.B.*

Kunitzky[1] maintains that psoriasis is not a parasitic disease, but depends on a predisposing abnormal irritability of the central nervous system. This irritability of the spinal vaso-motor ganglia may be inherited or acquired. It may possibly be only functional or due to material lesions. The eruption is excited over certain predisposed vascular areas by traumata of any kind, usually trifling. It is not correct, therefore, to say that psoriasis appears exclusively or chiefly in otherwise sound individuals. The primary change produced in the skin is a hyperæmia; not an inflammation, paresis, or stasis, but an angio-erethistic process. The peculiar arthropathies observed in severe psoriasis are to be traced probably to the same chronic condition of spinal irritation.

Paul Richter's[2] *Ointment for Psoriasis.*—The correct formula is :—

℞ Acid Salicylic	3 parts	Ammon. Sulphoichthyol	3 parts
Acid Pyrogallic	3 parts	Olei Olivæ	10 parts
		Adip. Lanæ	to 100 parts

At a recent meeting of the Paris Academy of Sciences, M. Guyon[3] reported the results obtained by M. Bouffé with the use of **Testicle Juice** injected subcutaneously, in amounts progressively increased from 10 to 20 cubic centimètres daily, for lengths of time averaging about three months. He had thus treated sixty-one men and twenty-two women with generalised psoriasis of long standing; 77 per cent. of them had been cured, and there had been no relapse in periods varying from two to five years.

Dr. Luton,[4] of Rheims, claims to have met with great success in the treatment of psoriasis by means of **Peroxide of Hydrogen.** He begins with simple lotions of the peroxide applied to the surface of

the patches, followed by the subcutaneous injection of a solution of phosphate of sodium in hydrogen peroxide. In a case which he reports at length 4 injections at intervals of four days effected a cure of the condition.

Herxheimer[5] has employed intravenous injections of **Arsenic** in the treatment of psoriasis in twenty-eight cases, in twenty-five of which no other treatment was adopted. Of these twenty-five, ten were completely cured, six left the hospital much relieved, and nine were reported as still under treatment, all greatly improved, and three nearly cured. The commencing dose is 1 milligramme of arsenious acid, and this is increased daily by 1 milligramme up to 15 milligrammes, the maximum dose, which is repeated daily till the eruption disappears, generally at the end of six or seven weeks.

The following is the method of procedure: After disinfection of the skin by soap, turpentine, ether, and sublimate, and the application of an Esmarch bandage above the elbow to render the veins prominent, the needle of a Pravaz syringe is introduced as nearly parallel to the skin as possible, and its penetration of the vein ascertained by withdrawing the piston. After the injection of 1 c.cm. of a limpid solution of arsenic of the desired strength, the wound is closed with oxide of zinc plaster.

REFERENCES.—[1] "Archiv. f. Derm. u. Syph.," Band xxxviii, Heft 3; [2] "Unna's Monatsh. f. prakt. Derm.," Oct. 1, 1898, p. 342; [3] "Presse méd.," July 17, 1897; [4] "Med. Press and Circ.," Dec. 22, 1897; [5] "Semaine méd.," clxii, 1897; epitomised in "Brit. Med. Journ."

PSYCHRO-ÆSTHESIA (Cold Sensations) and PSYCHRO-ALGIA (Cold Pains). *Græme M. Hammond, M.D., New York.*

Dana[1] reports seven cases in which sensations of cold or cold pains were prominent symptoms. He distinguishes two classes of cold paræsthesiæ. In one the symptom is not definitely limited to certain areas, but involves a whole extremity or all four extremities, and is associated with other paræsthesias or with pain, and often with evidence of vasomotor disturbance. The other class of cold paræsthesia, psychro-æsthesia proper, is a disorder in which the sensation is quite an isolated one. The patient suffers from a feeling of cold exclusively, or almost so. Furthermore, this form of paræsthesia is limited to some special area, oftenest upon the thigh or buttock, but sometimes upon the calf of the leg, or upon the face, and more or less following the distribution of a nerve. The sensation is purely normal and superficial. The patient feels as though some cold object were lying upon the part.

The sensation may disappear in warm weather or under exercise. In some cases it is more like a cold pain or psychro-algia, and it may be obstinate and distressing, especially in elderly and senile persons.

Pathogeny.—The psychro-æsthesia of the first or mixed type is often met with in mild forms of neuritis, such as may be caused by alcohol, or such as occurs in sciatica. It is also observed in locomotor ataxia, and in the early stage of syringomyelia. In practically all cases it means a lesion of the peripheral sensory neuron at one part or another of its course.

The purer types of cold sensation and cold pain are found more often in men, and almost always in persons over forty. The trouble is caused sometimes by trauma, combined with exposure and rheumatic tendency. A neuropathic constitution favours its development.

Pathology.—Apart from psychical states, the seat of the lesion is in the peripheral nerves. Its presence may, however, indicate a beginning syringomyelia, or some other central cord lesion, and also, in rare cases, locomotor ataxia.

TREATMENT. —**Anti-rheumatic Drugs, Nux Vomica, Exercise,** and **Electricity** are indicated. Locally, a liniment containing a little **Mustard Oil** is useful. When there are pain and evidences of decided neuritis, as in sciatica, rest is necessary.

REFERENCE.—[1] "New York Med. Journ.," Feb. 26, 1898.

PTOSIS. (See "Eye-Lids, Diseases of.")

PUERPERAL ECLAMPSIA. *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

TREATMENT.—Potter[1] dwells on the importance of preventive treatment, applied in the pre-eclamptic stage. As soon as any trace of albumin is discovered in the urine, the patient should be placed on **Milk Diet,** and **Diuretics** should be administered, of which one of the best is distilled water. This precaution is also emphasised by Charpentier.[2] In addition, Potter recommends, under certain circumstances, **Venesection** and the administration of **Nitroglycerin.** Blood-letting is advised when there is a full artery at the wrist and a tendency to cyanosis ; one good full bleeding is permissible, but it should be used with caution in repetition, and is contra-indicated during an eclamptic seizure. Charpentier on the other hand advises bleeding in presence of an eclamptic attack, if the patient be strong and vigorous, and if cyanosis be present. For the rest, the treatment of eclampsia itself resolves itself into medicinal and obstetric measures. Of the

former, the administration of **Chloral** is best, according to Potter; he deprecates the too free exhibition of chloroform, which however is largely relied on by Charpentier. Opinions are divided as to the use of veratrum viride: Potter describes it as "dangerous, uncertain and deceptive in its action;" but Gordon[3] has reported a successful case treated exclusively by this means.

The view that eclampsia is due to toxæmia has led to the employment of artificial **Serum** in its treatment. Charpentier was one of the first to advocate this plan, which has been practised with success by Solé[4] and by Launois and Meslier[5]; in each instance one case only is recorded. The latter authors combined the saline transfusion with venesection.

The same principle has been adopted in another form by Sené, who successfully treated a case of eclampsia by copious rectal irrigation. A copious bleeding caused arrest of the convulsions; but the patient shortly fell into a condition of complete coma, with total suppression of urine. For half an hour a copious enema of tepid water was administered, about five minutes being given to the injection. After a time consciousness returned, the kidneys resumed their work, and delivery was effected on the fourth day, with disappearance of symptoms.

The obstetric treatment of eclampsia consists in the induction of premature labour. Potter is a strong advocate of this treatment; but Charpentier thinks it should be reserved for a few exceptional cases; and Kollmann[6] considers rapid delivery unnecessary unless nature has already begun the process.

REFERENCES.—[1] "Buffalo Med. and Surg. Journ.," Sept. 1897; [2] "Annals of Gyn. and Pæd.," Jan. 1897; [3] "Lancet," Jan. 15, 1898; [4] "Presse méd. Belge," Jan. 24, 1897; [5] "Journ. des Prat.," Sept. 4, 1897; [6] "Cent. f. Gynäk.," 1897, No. 13.

PURPURA. *T. Colcott Fox, M.B.*

The following different clinical varieties of purpura are classed after the recent writings of Thibierge, Marfan, Gaucher and Barbe, and Apert:—

(1,) *Rheumatoid Purpura* (Schoenlein's peliosis rheumatica, Laget's purpura exanthématique, Couty's purpura nerveux, the purpura myélopathique of Faisans, œdème pourpré fébrile of Soyer), answering to the rheumatoid exanthematic purpura of Mathieu.—This variety presents the closest connection with the erythemata. It is met with most often in children of six to seven or eleven to twelve years. Rare in the adult, and then generally in women at the menstrual epochs. Apert suggests that it depends on an intense

cutaneous vaso-dilatation, resulting from a toxæmia. The toxic agent acts directly on the vessels, or perhaps by way of the nervous system, or both. It can be due to toxic substances elaborated in the organism itself, and brought about by cold, fatigue, emotion, excess. Or the toxæmia may follow the introduction of a microbial toxin from some recent local trouble, as a boil, angina, etc., or be due to a toxic agent—mineral, vegetable or animal—ingested or otherwise introduced.

Infectious Purpura arises in the course of well-defined maladies, such as variola, scarlatina, measles, especially in their hæmorrhagic forms; in the course of septicæmias (puerperal, surgical), infective endocarditis, pyæmias, and various suppurative inflammations (meningitis, pleurisy, etc.). Besides these secondary infective purpuras one can observe purpuras in various badly-defined infective states of unknown origin. The latter are the types of so-called primary infective purpura. The pathogeny belongs to septicæmia, and its general aspect, evolution, and complications (gangrene, phlegmons, purulent collections) confirm this.

(3,) *Werlhof's Malady* has an obscure etiology, and occurs almost entirely in children, and especially girls of five to six and ten to eleven years. It is not known if it is of infective or primarily chemical origin.

(4,) *Secondary Purpuras* are those which result either from a local lesion or general cause, consecutive to intoxications, to acute infective maladies (eruptive fevers, influenza, enteric fever, diphtheria, anginas, enteritis, furuncles, pneumonia, pleurisy, bronchitis, broncho-pneumonia, acute tuberculosis, puerperal fever, infective endocarditis, erysipelas, cholera, blennorrhagia, diverse suppuration); to chronic maladies (tuberculosis, paladism, cancer, leucocythemia, Bright's disease, diabetes, heart disease, liver disease).

Albert Fry, of Newark, U. S. A., in a case of *Hæmophilia*, tried every suggested remedy to stop the bleeding, but, as a rule, the bleeding continued until a stage of syncope was reached. His attention was called to an article by Feltz and Pigot, in the "Gaz. Hebdomadaire," No. 83, 1897, in which excellent results were reported in a severe case of purpura by the injection of artificial serum. Fry adopted the suggestion of these authors, and tried horse serum in three brothers, who were bleeders. The results were very satisfactory; 20 cubic centimètres of horse serum were injected into the muscular tissue of the back, and repeated at intervals.

RACHITIS. *Henry Dwight Chapin, M.D., New York.*

Dr. Mercoli[1] advances an infective theory of rickets, believing the disease is caused by infection from the presence of streptococci and staphylococci. These organisms are constantly found in the mouths of children and the mammary ducts of nursing women, and are swallowed. As long as the alimentary canal is healthy nothing happens; but if this is out of order from catarrh, dentition, etc., and if in any way these organisms find their way into the blood, and are localised in all the organs, but especially in the parts of greatest functional activity, the disease is produced. In the infant these are the nervous system and the epiphysial ends of the bones; hence the symptoms in rickets.

Dr. J. P. Zum Bune[2] advises **Lacto-Somatose** in rickets. It appears as a brownish-yellow powder, odourless, and rapidly soluble. If it is first stirred into a smooth paste with cold water it will at once dissolve on the addition of hot water. The dose was ½ a teaspoonful three times daily, always administered in milk.

REFERENCES.—[1] "Gaz. deg. Osped. e del. Clin.," Jan. 30, 1898; [2] "Monat. f. Pract. Med.," H. vii, 1898.

RECTUM (Cancer of). (See also "Cancer").

Charles B. Kelsey, M.D., New York.

In cases of high carcinoma Trendelenburg has operated as follows without resecting the sacrum. After purging, laparotomy was performed, the patient being in the Trendelenburg position; the peritoneal covering of the tumour was then removed, the tumour freed and isolated, and he could get down as far as the levator ani. The patient was now brought into the ordinary position, with the legs drawn up; an assistant pulled from the anus, the operator pushed from above, and a prolapse was thus reached, upon the summit of which the carcinoma was situated. The formation of the prolapse was much facilitated by incision of the mesocolon on the margin of the rectum, and sigmoid flexure. The carcinoma was now removed through healthy tissues. In this way resection of the coccyx and sacrum was avoided. The method is not easily applied to patients with fat abdomens.

Heydenreich advocates the vaginal incision for resection. The posterior vaginal wall is incised in the median line and the anterior part of the peritoneum divided from before backwards, the incision being continued around the anus. From the posterior part of this incision another is carried down to the coccyx, two vaginal and two posterior flaps being thus formed. The lower end of the rectum is then excised, the healthy edge drawn down and sutured to the skin,

and the vaginal, perineal, and ano-coccygeal incisions closed with a few stitches. The objections against complete division of the retro-vaginal wall do not stand serious criticism, while the division greatly facilitates resection of the rectum. It is indicated both in cancer reaching to the anus and in other lesions situated higher up, except when the anterior wall is implicated at the point of division, and when the neoplasm does not reach higher than 12 or 15 centimètres above the anus. The method is most advantageous, the hæmorrhage is small and easily controlled, the first incision brings the rectum into view, and it is possible to intervene far above the insertion of the peritoneum. Infiltrated glands can be reached. The operation is shorter and the shock less severe than in Kraske's operation. Fistulæ, fæcal incontinence, and lack of solidity in the bony pelvis are avoided, and the surgeon has plenty of light and room.

Kraske's experience since 1885 comprises eighty cases of extirpation. That the same principle—namely, to remove the disease thoroughly by an operation—applies to cancer of the rectum as it does in cancer of other organs is self-evident. The necessity of emphasising this axiom would not be apparent were it not for the fact that there are yet some surgeons who reject every form of radical operation, and limit their treatment to the formation of an artificial anus. The latter conduct is a step backward, for the curative results obtained by the radical treatment of cancer of the rectum are not only not worse but even better than in other forms of cancer, and the immediate danger of the operation is becoming less from year to year.

The indications for operation have, in the author's experience, become well established. In the first place, the high situation of a cancer of the rectum is no contraindication to operation. A tumour in the uppermost portion can be removed without difficulty, and the extirpation of a growth situated in the intraperitoneal portion of the bowel is easier than of one situated lower down, provided that it is strictly limited to the intestinal wall and freely movable. In general, a tumour of the upper portion, which is firmly adherent to the bladder, uterus, or sacrum, should be regarded as inoperable. Lower down the adhesions are less important, and the operation is still justifiable, provided no other contraindications exist, even when it is necessary to remove a large portion of the surrounding soft parts, or even the posterior vaginal wall, or a portion of the urethra.

If an operation has been decided upon, a preparatory course of treatment becomes all-important. Such a course consists in a thorough evacuation by cathartics and enemata. Accumulation of impacted fæcal matter may necessitate three to four weeks of continued

treatment. Failure properly to carry out this preparation is responsible, the author thinks, for several of his fatal cases. The accomplishment of the purpose of this treatment is ascertainable by palpation ; still more reliable information is gained by estimation of the amount of indican in the urine. The stenosis is occasionally of such a degree that the bowel cannot be properly emptied. The advisability of making a preliminary colotomy may then be entertained, but resort to it will seldom be necessary. If done at all, it should be as an actual preliminary operation, and not immediately prior to operation, as recommended by Schede. The opening is best made in the transverse colon, as here the artificial anus is more easily established, and can eventually be more easily closed, should resection of the intestine be necessary for that purpose.

The operation for cancer of the upper rectum consists of three acts : (1,) The preliminary sacral operation ; (2,) Removal of the tumour (resection of the rectum) ; (3,) The treatment of the peritoneum, of the ends of the bowel, and of the wound.

(1,) The patient is placed on his right side, the knees and hips being well flexed. The incision begins at the level of the middle of the sacrum, two to three fingers' breadth to the left of the median line, and runs slightly concave to the left, to the coccyx, running from that point in the median line and ends a finger's breadth above the anus. The soft parts and the insertion of the sacro-sciatic ligament are divided. After cutting through the fat lying in the ischio-rectal fossa, the levator ani, and lying above it, the coccygeus appear. This layer is divided close to the sacrum and coccyx ; the latter is then dissected free posteriorly and on the right side and excised. The loose fat intervening between the upper pelvic diaphragm and the bowel is now pushed to one side with the finger, and the rectum is now plainly visible as it bulges out with the respiratory movement. In many cases the preliminary act is now accomplished. Occasionally more room will be necessary, owing to the firmness of the adhesions or to the relatively narrow space between the sacrum and the ascending ramus of the ischium. Resection of a portion of the sacrum is then necessary, and may be performed with the chisel, bone-forceps, or chain-saw, after separation of the soft parts in a line concave inward and downward, running from the third left sacral foramen to and around the fourth foramen to the lower angle of the sacrum. In cases attended with marked technical difficulties there should be no hesitation at making a transverse resection at the level of the third foramen.

(2,) The resection of the cancer from the continuity of the rectum begins with the division of the bowel below the tumour. It is opened

transversely, the left index-finger meanwhile pressing it up into the wound. Sutures are passed through the upper cut surface serving for traction, and more are placed as the incision is extended to either side, till the bowel is entirely divided. Blunt dissection precedes each step of the division, but should not be employed over-zealously, lest the vitality of the gut be endangered. The same objection applies to freeing the gut entirely prior to opening it.

The bowel having been divided below, the patient is brought into the lithotomy position, and the dissection proceeded with on all sides, partly blunt and partly with the scissors. On the anterior aspect great care is necessary, as the anterior fold of the peritoneum soon appears. If the fold lies beyond the upper limit of the tumour it can be stripped off from the bowel, and sometimes to a marked extent; but if below the tumour, any attempt to continue before opening the peritoneum is bad judgment. The latter having been opened, two fingers are readily introduced and the incision extended laterally, the gut is pulled down and divided, and the sacral glands removed.

The operation is sometimes not so easy as just described, as the adhesions may give serious trouble, or the tumour may have extended beyond the limits of the bowel.

(3,) Treatment of the peritoneal wound. Should only a very small opening have been made, it may be closed by ligature or suture. When a more extensive wound has been made, and much manipulation of the parts has been necessary, suture of the peritoneum is not to be thought of, and the opening should simply be packed; this treatment giving the author a feeling of nearly absolute security. Suturing is, moreover, often attended with technical difficulties, and unduly prolongs the operation.

Treatment of the Ends of the Bowel.—As opposed to amputation, resection of the rectum has the aim not alone to remove the disease, but also to restore the continuity of the bowel with preservation of its function. The author's method of obtaining this result has been modified from time to time by his experience. The first attempts to unite the gut completely by circular suture resulted so disastrously that the method was abandoned, and the anterior portions only united, permitting free exit of fæces into the wound. The plan was to make a secondary suture of the bowel after the peritoneal opening should have closed, but it failed absolutely, as did the attempt to bring together the broad granulating surfaces. Sometimes the opening could be closed down to a small fistula, and then cured by repeated secondary operations. The next attempts were made in the direction of invaginating the upper end into the lower with or without circular

suture of the cut ends. Unfortunately this procedure always resulted in extensive gangrene of the upper end, and primary union of the bowel was never obtained. This procedure, when employed without preliminary suture, had the advantage of time-saving, and performed by either method never gave rise to so complete an artificial anus as the earlier operation.

The author has finally returned to his early method, or the ideal, of immediate circular suture, as a successful result is perfectly possible, if a sufficiently careful preliminary treatment has been carried out, and if the bowels are kept constipated by opium for eight or ten days after operation. The anterior and lateral portions of the bowel are quickly united by passing sutures at half a centimètre's interval through the entire thickness of the bowel, and adding suture of the mucous membrane between. The posterior portion is closed from outside by tier sutures not involving the mucous membrane. While primary union is generally obtained, the fine fistulæ sometimes observed usually close spontaneously.

Treatment of the Wound.—Careful packing with iodoform gauze prevents infection, which in this region is especially dangerous. The packing should not be removed till it shows a tendency to become loose, about the end of the first week.

To attempt to estimate the direct danger of the radical operation for cancer of the rectum is an impossibility. The author would warn any one from attempting to draw a general deduction from his (the author's) statistics. Fifteen patients out of eighty died before complete closure of the wound. Early in the course of the author's experience in this operation he published ten cases, with four deaths. This mortality of 40 per cent. has ever after been used as a reproach against the operation. Dividing his cases into two periods,—the first five years when he was evolving the present improvements, and the last seven,—we have (1,) twenty-nine cases, ten deaths, mortality equal to 34·5 per cent.; (2,) fifty-one cases, five deaths, mortality equal to 9·8 per cent. No deaths have been thrown out because they were due to causes not in direct relation with the operation. Such a course is usually pursued by others in making up statistics for cancer of the rectum; and were the author to follow this example, eight such deaths could be eliminated from his mortality, reducing the percentage to 8·75.

Four of the deaths were from peritonitis. All occurred prior to May, 1888. Septic infection of the wound, with emphysema of the tissues, was responsible for three deaths. The average time required for complete closure of the wound was from four to six weeks. The

author has failed to trace the after-history of his cases only five times. Excluding two cases of sarcoma, and three of squamous-cell cancer of the anus, observations of fifty-five cases are at hand.

Twenty-two cases died of recurrence, with or without metastases, in from six months to twelve and three quarter years after operation. One patient died of metastatic cancer of the brain, without local recurrence, two and one quarter years after operation. One is alive, with recurrence one and one quarter years after operation.

Sixteen patients died from intercurrent diseases, without recurrence or metastases, from one and one quarter to five years after operation.

Fifteen patients are alive and free from recurrence in from three-quarters of a year to eight and a half years after operation.

REFERENCES.—"Med. Press and Circ.," June 9, 1897; "Brit. Med. Journ.," Dec. 4, 1897; "Annals of Surg.," Sept., 1897.

RECTUM (Disorders of). *Charles B. Kelsey, M.D., New York.*

In a clinical lecture Kelsey calls attention to the fact that in women the greatest obstacle to the success of any form of treatment of diseases of the lower bowel, either operative or non-operative, will often be found to be the co-existence of some form of uterine, ovarian, or bladder trouble. The same treatment applies to many affections of the urinary organs in men, such as enlarged prostate and irritation of the neck of the bladder. He holds that one of the first steps which must be made in fitting one's self for the practice of diseases of the rectum as a speciality, is to learn to diagnosticate the condition of the female pelvic organs by conjoined manipulation; and there are many diseases of these organs which he must know how to treat and cure, unless he is constantly willing to confess to those who consult him that his powers as a surgeon are of very limited scope.

There are many points at which the speciality of diseases of the rectum overlaps that of diseases of women, for most of the diseases of women cause symptoms connected with the rectum. Among these are tumours of the uterus or ovaries pressing upon the bowel; pelvic abscesses opening into and discharging through the bowel; false passages existing between the bowel and the bladder or vagina, etc. A large class of cases is those of lacerations, which, though not extensive enough to tear completely into the rectum, still weaken it so as to cause the most obstinate constipation from lack of muscular power to expel its contents. All of these cases, the author holds, come properly within the range of the surgery of the rectum.

REFERENCES.—"Clinical lectures on the office treatment of Hæmorrhoids, and other subjects." By Charles B. Kelsey, M.D., New York. E. R. Pelton.

RECTUM (Prolapse of). *Charles B. Kelsey, M.D., New York.*

The following plan of treatment has been tried successfully both in prolapse of the uterus and rectum. In case of the latter at the junction of the skin and mucous membrane, just beneath the latter, a curved needle is inserted in the median line below, and a silk thread is carried half way around the anus and out again, in the median line above, re-inserted in the same opening and brought out at the first puncture, making a purse-string suture. The little finger is then put in the anus and the string tied snugly around it. Apparently this would cause suppuration, and possibly a fistula. It does nothing of the kind, nor does it cause any pain afterward. The child has his stools in the recumbent position. If the fæces are at all hard, injections are given to soften them. After three weeks the suture is withdrawn and the place kept clean, when it heals immediately with no return of the prolapsus. By this method the bowel is kept in place long enough to contract adhesions; by the other methods it is difficult to keep the bowel from coming down after or during a stool: no pad in the world will keep it up in the case of a young child. Two weeks after removal of the sutures in these two cases one could not tell that sutures had been used.

REFERENCE.—"Johns Hopkins Hosp. Bull.," July, 1898.

RECTUM (Stricture of). *Charles B. Kelsey, M.D., New York.*

Rieder, from microscopic study of the blood-vessels involved in the ulcerative process causing non-malignant stricture, with special relation to the cause of the disease, concludes:—

(1,) Syphilitic stricture of the rectum does exist.

(2,) It arises from the blood-vessels, and perhaps also from the lymphatics.

(3,) This origin is the cause of its relative frequency among women.

Berger returns to the older methods of treatment, advocating proctotomy and gradual dilatation, rather than resection. He believes that in most cases as much relief can be gained in this way when skilfully practised, as by more radical measures. The treatment is contraindicated where there is any grave general condition, and where there is abundant suppuration, marked rectal tenesmus, or stricture situated high in the bowels.

Sonnenburg holds that the best treatment for deep-seated non-malignant stricture is extirpation.

REFERENCES.—"Annals of Surg.," April, 1898; "Gaz. hebdom. de méd. et de chir.," Oct. 22, 1896; "Med. Press and Circ.," June 9, 1897.

RECTUM (Tuberculosis of). *Charles B. Kelsey, M D., New York.*

Straus holds that a thorough microscopic examination must be made in every case of suspected ulceration. The author reported four cases of removal of the ulcerated rectal tissue and described his operation. Recovery followed in all of the cases but one. His conclusions were that: (1,) Primary tuberculosis of the rectum is not so infrequent as is generally supposed; (2,) It is surgical; (3,) It cannot be diagnosed positively and invariably by the usual clinical symptoms—the microscope must be employed; (4,) Local treatment will not cure these cases; they can be cured only by thorough curettage or by excision, or by both; (5,) Some of the most hopeless cases are cured by repeated operations; (6,) All suspicious cases should be subjected to the microscope; (7,) We have sufficient evidence that the cases reported are cured.

REFERENCE.—"New York Med. Record," Oct. 23, 1897.

RETINA (Diseases of). *William Oliver Moore, M.D., New York.*

Retinal Hæmorrhage after middle age, and its bearing on the duration of life.—Of this condition Desby[1] says he has seen about ninety cases, and of tracing the subsequent events in thirty-one, between the ages of forty-three and eighty-three. Twenty-five of these died after brief illnesses, some indeed with the utmost suddenness. Eleven died of heart disease, fourteen of apoplexy; five were still living, their average age when first seen being fifty-four.

Retinal and Optic Nerve Lesions associated with Gout.—Bull[2] finds changes in the walls of the blood-vessels of the retina, choroid, and optic nerve, including arteries, capillaries, and veins. The changes are always bilateral, though rarely symmetrical in the two eyes. Hæmorrhages into the retina are rare, except in the comparatively early stages of the disease. A marked symptom is the peculiar yellowish granular exudation in the retina, located by the ophthalmoscope around the posterior pole of the eye and generally leaving the macula intact until late in the course of the disease. The optic nerve changes seem generally to be intra-ocular, occasionally they have been traced some distance back of the eyeball. Angio-sclerosis in the vessels of the retina is marked, and can be verified by the microscope.

Syphilitic Neuro-Retinitis.—Ware[3] has never seen a case of this disease following thorough and prolonged anti-syphilitic treatment. Without treatment it is sure to lead to blindness. **Mercury** should be used, and its method is often of little importance. Of late he has used hypodermic injections—**Metallic Mercury,** 1 part; **Lanolin,** 4 parts;

Carbolic Oil (2 per cent.), 5 parts; the usual dose, 5 minims, may be gradually increased to 10, giving an injection once a week in the gluteal region.

Albuminuric Retinitis.—Sutton,[4] in his study of the fifty cases he has collected, has had twenty-one autopsies to guide him in his conclusions, which are: (1,) Albuminuric retinitis affects both acute, chronic, and lardaceous cases, especially chronic interstitial and chronic tubal, and the latter relatively more often; (2,) Both eyes are affected at one time or another; (3,) Sex, age, and occupation have no special import; (4,) The white spots may depend on coagulation of filmy extravasations, fatty degeneration of Müller's fibres, œdema of nerve fibres, sclerosis of nerve fibres, diapedesis and collections of white corpuscles; (5,) The hæmorrhages are most likely due to the morbid state of the blood, and to the pressure on the vessels by the deposit in the retina; (6,) The optic neuritis often associated with conspicuous symptoms of cerebral disturbance.

Retinal Detachment.—Schmidt-Rempler[5] opposes the theory that detachment of the retina is commonly due to traction by fibres newly formed through previous disease of the vitreous. The tears in the retina are not found in the majority of the cases. The traction theory does not suit cases in which the retina becomes re-attached and again detached; nor the detachment due to traumatism, anæmia, etc., without previous disease of the vitreous. He opposes treatment by division of supposed vitreous fibres, or injections into the vitreous of iodine, or dilute vitreous of the rabbit. He favours the pressure bandage, dorsal decubitus, diaphoresis, mercurialization, scleral puncture, and treatment proper to choroiditis.

Operative Treatment of Detached Retina.—Rohmer[6] reports several cases of detached retina in myopic subjects cured by puncture and rest in bed. He preferred the puncture to any of the various methods in vogue.

Clarke[7] thinks that the prophylaxis of detachment of the retina consists in correcting all errors of refraction, especially myopia, and to combat any and all inflammations of the eye incidental to this condition; especially to care for and relieve any choroiditis or cyclitis. Ophthalmic hygiene should be rigidly adhered to, and work that requires close application should be continued for only short periods at a time. In the school-room many cases of myopia begin, and also detachment of the retina.

Action of X Rays on the Retina.—Bardet[8] says their action has been denied. He says that all subjects he had observed experienced a luminous sensation when the eye was in the field of action of a tube

lighted by the cathodic light, and that the media, if they presented any resistance, did not prevent the luminous action. On the whole the sensation of light was weak, but distinct ; it was synchronous with the vibrations of the tube. If the axis of this was turned so as to throw the radiations in another direction, the phenomenon disappeared, which fact did not permit of the supposition that the impression was due to the action of the electric field.

Retinitis Pigmentosa, without characteristic Pigmentation.—Gould[9] suggests that more careful examination be made : (1,) Inquire of every office patient if he sees as well at night as other people, watch for the "bowed head sign" ; (2,) Test every patient with finger movements at 90° to the patient's temporal sides ; (3,) If in doubt, test the extent of the field at least for white with the perimeter ; (4,) If there is a narrowed field, carefully examine under a mydriatic the periphery of the retina as to its pigmentation ; (5,) If a case is found report it, and besides the usual history and data, give also carefully-made perimetric charts for white and the four principal colours ; record also the central acuity for form and the exact error of refraction ; (6,) The important facts to determine are : Is the disease progressive ? If so, is it the incipient stage of what later becomes typical retinitis pigmentosa ? Typical cases in brothers and sisters, or inherited from an ancestor with the typical disease, would greatly help to determine this. What is the pathology of the abnormal colour fields ? What is the etiology of the disease ?

Atrophy of the Optic Nerve.—Kollock[10] reports a case of optic atrophy, in which great improvement of vision followed inhalation of **Amyl Nitrite** after other treatment had failed to produce any marked effect.

Ocular Hæmorrhages in Young Subjects and in Adults.—Abadie[11] lays stress on two symptoms which he thinks are of importance as bearing on the causation of intraocular hæmorrhages in young subjects : (1,) The epistaxis which often precedes or accompanies them ; (2,) A noticeable diminution in the number of the red corpuscles in the blood. These seem to indicate that the hæmorrhagic process depends on an alteration in the blood. The results of treatment directed to improving the quality have been found by Abadie to be most satisfactory. He strongly recommends a glass of **Sulphuric Lemonade,** extract of **Cinchona** 1 gramme, and **Perchloride of Iron** 10 to 20 drops, to be taken daily. To favour absorption of the effusion he applies the artificial leech to the temple.

Hæmorrhages associated with choroido-retinitis are not to be confused with the above, and require a mercurial treatment

REFERENCES.—[1] "Amer. Journ. Med. Sci.," Oct.. 1897; [2] Ibid., March, 1898; [3] "Arch. of Ophthal.," p. 345, 1897; [4] "Guy's Hosp. Repts.," vol. lii; [5] "Deut. med. Woch.," No. 44, 1897; [6] "Brit. Med. Journ.," July, 1898; [7] "Med. Press and Circ.," vol. cxv, No. 1, [8] "Trib. Med.," Aug. 25, 1897; [9] "Brit. Med. Journ.," Oct., 1897; [10] "Ophthal. Rev.," May, 1898; [11] "Bull. Soc. d'ophthal. de Paris," 1897.

RHEUMATISM. *Editorial.*

Several articles have recently appeared recommending the use of hot dry air locally applied in the treatment of rheumatism.

The selection of dry heat in preference to other forms is explained by the fact that in this form much higher temperatures can be applied than when moist heat is used.

It does not appear to have occurred to the writers of these articles that the reason why dry heat can be borne at a much higher temperature than moist heat is because dry hot air possesses very feeble thermal effects.

The thermal effect is not tested by the application of the thermometer to the heating agency employed, but to the body upon which it acts.

Thus, water at the temperature of the blood will raise the body temperature 1 degree C. in one hour, and is therefore a more powerful *thermal* agent than hot air at 180 degrees F., which will scarcely raise the temperature of the healthy body at all.

Still more powerful is the thermal effect of a number of dry blankets at 60 degrees F., for if closely wrapped round the body they will raise the body temperature 2 and 3 degrees in one hour. It is by checking radiation of heat from the body that thermal effects are obtained.

It is important to mention this because some of these writers have given a number of experiments which appear to show that a local hot-air bath will raise the body temperature 1 or 2 degrees in an hour. By administering a local hot-air bath to a patient, dressed in warm clothing or wrapped in blankets, such results may be obtained, but to quote such experiments as proving the thermal effects of dry hot air, is likely to cause a confusion of thought which is very undesirable on the part of those who practise thermo-therapeutics.

Local hot-air baths have so long been discarded by those accustomed to the use of heat that the reasons for their disuse does not appear to be generally known.

Heat as a therapeutic agent has great advantages and also a great power for harm.

By application of heat we can dilate the blood-vessels and increase

the blood supply of the tissues. This is accomplished by a temporary paresis of the vaso-motor nerves, and moderate heat will accomplish this. We cannot dilate the blood-vessels beyond their limits, but if we increase the local heat beyond a certain point, we can permanently injure the vitality of the vaso-motor nerves.

Excessive or long-continued applications of dry heat tend to destroy the functional activity of the skin. Examples of this are seen in the skin of residents in dry hot climates, and from the excessive use of the highest temperatures of the Turkish bath. In such persons the skin becomes dry and parchment-like. The local effects of dry heat can be seen in persons who sit with their feet in the fender, and who thus take "radiant heat baths" on their shins. The result is an irritable condition of the skin, which is difficult to cure because of the serious impairment of the vaso-motor nerves.

Another effect of heat is its sedative effect on the spinal nerves. By increasing heat beyond a certain point it is possible to produce a partial paresis of both sensory and motor fibres, and cause a condition very favourable to the relaxation of a stiffened joint. These effects disappear as soon as the joint becomes cold, a fact which those who have demonstrated these effects of heat have not always remembered to point out. The value of such applications is to facilitate manipulation and movements of the joint while heat is retained. In the case of stiff joints no harm is done by several of such applications, but in cases of rheumatoid arthritis, excessive local temperature should be avoided, because the nervous mechanism of the joint is already impaired.

It will be understood, therefore, that physicians accustomed to the applications of heat in the treatment of joint disease find very little use for hot-air local baths. Their object is to obtain the *maximum* of thermal effect with the *minimum* of heat. This can be accomplished by the addition of a very small amount of moisture to the air; thus, dry air at 180 degrees F. applied to the whole body has practically no thermal effect; the same air containing a small amount of moisture will, at a temperature of 105 degrees F. raise the body temperature 2 and 3 degrees in twenty minutes. It is hardly likely that a skilled balneologist would expose his patient to all the ill effects of excessive heat, when he can obtain every thermal effect he wants without having recourse to it. This is the reason why it has been left to unqualified persons possessing no knowledge of physiology or joint disease to re-introduce and patent such appliances.

It is obvious that any practitioner who wishes to try the effects of dry hot air or of heat reflected on to the body can do so without

employing any patented appliance, as such treatment is as old as the history of the world.

The most simple and convenient application of local heat for joints is as follows: Six thicknesses of flannel of convenient size are sewn together; these are wrung out of water at 120 degrees F., and wrapped round the joint; over this is placed a hot-water bottle half filled with water, and the whole secured with a flannel wrapper.

It will be found that this will not only produce the maximum thermal effect upon the joint, but will also, if the patient is in bed and covered with the bed-clothes, produce an actual rise of temperature. This is not only more comfortable to the patient than any of the patented appliances, but is more powerful in its effects, and costs nothing.

Experiments with such an appliance will very soon convince the practitioner that it is necessary to moderate the heat employed where treatment has to be long continued.

At Bath, where the water has a natural temperature of 117 degrees F., it is seldom used at a higher temperature than 100 degrees F., except in special cases. Experience shows that the temporary relief obtained by high temperature is unsatisfactory in its after results.

Local applications of **Salicylate of Methyl** were described in our last issue.

The following formulæ may be useful. It will be understood that the ointments are applied to the joint, which is then covered with lint, oil-silk and cotton wool :—

℞ Liquid Vaseline 20 grammes | Methyl Salicylate 12 grammes

If the winter-green odour is disagreeable, salicylic acid can be substituted, although less effective :—

℞ Vaseline 20 grammes | Salicylic Acid 4 grammes

Or the combination :—

℞ Vaseline	25 grammes	Sodium Salicylate	3 grammes
Salicylic Acid	4 grammes	Ext. of Belladonna	1 gramme

Guaiacol has a pronounced antithermic effect, and rapidly soothes the pain. It can be applied pure, but it is best to use 1 gramme at a time in 5 grammes of 85 per cent. alcohol; or it can be mixed with vaseline :—

℞ Vaseline 25 grammes | Guaiacol 4 grammes

The following combination is very effective, but has a disagreeable odour :—

℞ Vaseline	30 grammes	Salicylic Acid	2 grammes
Methyl Salicyl.	5 grammes	Guaiacol	4 grammes

All of these substances are readily absorbed by the skin.

Guaiacum is an old but neglected remedy in rheumatic and gouty affections, to the value of which Mr. Alfred James has recently called attention.

According to Hewelke,[2] **Actæa Racemosa,** made from the Canadian or North American plant, has given good results in acute articular rheumatism, beginning with a dose of 4 drops every two hours, and increasing until 40 or 50 drops are taken daily.

Dr. Miller,[3] at the meeting of the British Medical Association, said that he had seen a single dose of actæa racemosa (℥j) cure muscular rheumatism.

This dose will in many persons produce severe headache.

Salicylates.—The **Salicylates of Ammonium** and **Strontium** are recommended by many recent writers in preference to the soda salt.

This is recommended as an agreeable salicylate mixture :—

℞ Potassii Acetatis	℥ij	Syrupi Limonis	℥ij
Acidi Salicylatis	℥ss	Aq. Menth. Pip.	℥viij

Sig.—Tablespoonful every three hours.

Tellurate of Sodium, gr. ⅓, twice daily, has been recommended for controlling the sweats of rheumatic subjects.[4]

Singer[5] proposes the intra-venous injection of corrosive sublimate in the treatment of acute articular rheumatism. Considering that the natural tendency of acute rheumatism is to recovery, methods of treatment involving direct danger to the patient from the treatment itself should be discountenanced.

The following is recommended in chronic rheumatism by Da Costa[6] :—

℞ Liq. Potass. Arsen.	℥ij	Syr. Simp.	℥iij
Potass. Iodid.	℥ij		

M. Sig.—℥j, t.i.d., p.c. in water.

Dr. Lemanski[7] speaks highly of the following suppositories in the treatment of acute articular rheumatism :—

℞ Salic. of Soda	1 gm. (grs. xv)	Butter of Cacao	q.s.

Sufficient for one suppository. Make twelve such suppositories and introduce from 5 to 6 daily. This method of administering the salicylate is much more convenient than the rectal injections recently praised by a German writer, Erlanger.

REFERENCES.—[1] "Nord méd.," Feb. 1, 1897; [2] "Ther. Woch.," 1897; [3] "Brit. Med. Journ.," June 11, 1898; [4] "Revue de therap.," Jan. 12, 1898; [5] "Centralblatt f. die gesam. Thérap."; [6] "Med. Record," Dec. 18, 1897; [7] "Indian Lancet," July 16, 1897.

RHEUMATISM (Gonorrhœal). *Editorial.*

Rendu[1] is of opinion that the proper treatment of gonorrhœal rheumatism consists in treating the discharge itself. Internal remedies such as salicylate of soda, salol, and salophen are unsatisfactory. The gonococci must be destroyed at their point of origin where they multiply and infect the organism generally. The best means are by **Permanganate of Potash** irrigations. According to Rendu, after two or three days of this treatment, the swelling, pain, and œdema of the joint subside, and a cure is effected. The treatment is more effective in early cases, but if the joints have been affected for long, it often fails. In such obstinate cases Rendu recommends injection of the joints with 1 in 4,000 **Perchloride of Mercury.** In suppurating cases arthrotomy is indicated. If the joint has not long been immobile there is little fear of ankylosis, but stiffness and muscular atrophy often occur, which are best treated by massage exercises and the faradic current.

Dr. John O'Conor,[2] of Buenos Ayres, recommends free incision into the joint, removal of deposits, and injection with a 1 in 5,000 **Biniodide Lotion,** and insertion of a gauze drain. He records several cases with recovery of movement in the joint subsequent to operation.

REFERENCES.—[1] "Brit. Med. Journ.," Apl. 16, 1898; [2] "Annals of Surg.," Feb., 1898.

RHEUMATISM IN CHILDREN.

Henry Dwight Chapin, M.D., New York.

Dr. Siredey[1] advises the treatment of articular rheumatism by local applications of **Salicylate of Methyl.** From 50 to 120 drops is poured, drop by drop, upon the affected part. Absorption is proved by chemical examination of the urine within half an hour after the applications. The treatment may be repeated twice within twenty-four hours if the pain is very severe. Cardiac complications in no way contra-indicate the local use of methyl salicylate.

Dr. W. B. Cheadle[2] deprecates large doses of sodium salicylate on account of the depressant effects. The milder drug, **Salicin,** may be substituted in most cases, given in doses of 5 to 20 grains, or **Quinine,** in doses of 1 to 3 grains every four hours. In each case an alkali, sodium or potassium citrate, should be combined and given in doses of 5 to 20 grains, according to age. The use of depressant drugs, as antipyrine, antifebrine, aconite, with a view of lowering temperature, cannot be too strongly deprecated.

REFERENCES.—[1] "Journ. de clin. et de thér. enf.," vol. v., No. 33; [2] "Treatment," No. 5, 1897.

RHEUMATISM OF LARYNX. (See "Larynx, Diseases of.")

RHEUMATOID ARTHRITIS. *Editorial.*

Dr. James Stewart,[1] of the McGill University, gives an interesting paper upon the above disorder. He inclines to the view that rheumatoid arthritis is an infectious disease, and also states that there is no sharp dividing line between certain cases of rheumatism and the earlier stages of rheumatoid arthritis. In reference to the latter part, we think that if more attention were paid to the muscles than to the joint during an examination, the difference would be readily observed. The loss of tonicity in the muscles in arthritis precedes the joint affection, and is so decisive that by merely shaking hands with two patients, each supposed to have only slight rheumatism, it is possible to distinguish the arthritic case from the rheumatic.

It is in the chronic forms of rheumatism when wasting of muscle occurs as a result of disease of the joint, and so produces deformities which are supposed to be characteristic of rheumatoid arthritis, that mistakes are apt to occur. But in these cases the true arthritic patient should present a moist palm; when the skin is dry, chronic rheumatism or chronic gout may be suspected. Many cases of chronic gout, *i.e.*, patients with deposits of urate of soda in and about the joint, are diagnosed at the present time as rheumatoid arthritis. It is for this reason that we hear of benefit being obtained from the use of local applications of high temperature, which would be prejudicial in true cases of rheumatoid arthritis.

Dr. David Riesman,[2] of Philadelphia, prefers the term used by Virchow, arthritis deformans. Heberden's nodes were manifestations of rheumatoid arthritis rather than of gout. The theories which had been advanced in explanation of rheumatoid arthritis, or arthritis deformans, were: (1,) That it was a form of chronic rheumatism; (2,) That it was a mixture of inherited rheumatism and gout; (3,) That it was of nervous origin; (4,) That it was caused by a specific germ. The author thought the third was most in consonance with the symptomatology, etc. He related a case showing apparent benefit from **Strontium Bromide.** It had relieved the pain, and perhaps had eliminated the disease.

Zolotavine[3] used **Lactic Acid** with success in an old case of arthritis deformans, administering daily 10 drops of this drug upon an empty stomach, and allowing no food for an hour and a half afterward. The disease had lasted for ten years, and for a year the patient had not been able to leave her bed. The dose of the medicine was gradually increased to 40 drops daily. At the end of three weeks the action of the acid was manifest; the articular pains were so relieved

that the woman was able to get out of bed and walk a little; the circumference of the joints diminished slightly; nutrition improved and abdominal pains disappeared. No other medicine was used, and the only external treatment was a light massage. Improvement continued until the patient, at the time of writing, could walk without a cane and attend to her ordinary occupations.

REFERENCES.—[1] "Montreal Med. Journ.," Dec., 1897; [2] "Med. Record," July 10, 1897; [3] "La méd. moderne," Sept. 18, 1897; "Therap. Gaz.," Mar. 15, 1898.

RHINITIS (Atrophic). *R. Lake, F.R.C.S.*

Etiology.—Beaman Douglas[1] is of opinion that vitiated air, hot rooms, dry heat, and crowding, with the effects of debility and weakness, are the causes of this condition. He also thinks that a flat nose predisposes to the affection.

Sinus Disease and Adenoids.—These are both according to Harris[2], who has made special observations, causes of ozæna. He is in accord with Grünwald in this. Bosworth, however, takes exception to these views; he has only seen one case in which ozæna was accompanied by sinus disease. In his opinion the whole etiology of the crust formation lay in the abolition through atrophy, of the hydrotic function of the turbinate bodies.

Symptoms.—It must never be lost sight of that ozæna is only a symptom of atrophic rhinitis, and that the absence of it does not prove that the disease is other than atrophic rhinitis. As will be seen in another paragraph there are at least four varieties. In the anæmic and scrofulous (? with specific taint) ozæna is present. In others it is not.

TREATMENT.—Chappell[3] states that the gouty or rheumatic variety requires appropriate remedies; the anæmic its usual treatment. Oily preparations are of use in preventing the reformation of the crusts. **Iodine** is without doubt the most serviceable drug we possess, and should be combined with cod-liver oil internally, and with out-door exercise. Concannon had satisfactory results with **Ichthyol**, as a topical agent, together with irrigation of the ethmoidal cells.

Interstitial Cupric Electrolysis.—We gave a short description of this method in the preceding volume (p. 399, 1898), and it is necessary that the sequel should also be placed before our readers.

Hughes[4] relates the result of seventeen cases treated by this method, and the results were: three under thirty years of age, cured; two under twenty, probably cured; six improved. A commission[5] in Belgium appointed to examine into the merits of this treatment came to the conclusion that it was of no benefit; that its findings

were conclusive seems doubtful, though it does appear that the treatment is not a specific.

Iodine Injections.—Gradenigo,[6] in view of the temporary character of the results of serum therapy, tried intra-muscular injections of iodine, using Durante's formula.

He thus summarises his observations. Suppuration has diminished and become more fluid, odour decreased or disappeared, and aural symptoms have been ameliorated.

Massage is considered a valuable adjunct to treatment by Moure,[7] who massages the mucosa with a pledget of wool soaked in either **Phenolised** or **Iodised Glycerin,** every alternate day for a fortnight, then twice weekly, and after this according to the needs of the case. The massage is always followed by, first a douche to remove the secretions, secondly the nose is sprayed with a **Nitrate of Silver** solution of 5 per cent. to 25 per cent., ; finally an alkaline douche is employed to remove the excess of silver nitrate. There is frequently coryza and headache both of which are generally very temporary.

After one or two months of this treatment obstinate cases usually show signs of sinus infection, most frequently maxillary. If a sinus is affected treatment must be directed to it.

Cocaine and **Hydrarg. Oxidi Flav.** are employed by Rhodes[8] in the form of a powder, the former 2 per cent., the latter 2 per cent. to 5 per cent., after a preliminary cleansing of the nose with an alkaline solution, containing **Menthol** and **Thymol.** Cocaine produces a paresis of the vaso-motor nerves, and a subsequent dilatation of the vessels, and thus increased nutrition.

Whilst all who have made use of the powerful remedy, **Diphtheria Antitoxin**, speak well of its curative action, Compaired[9], Lombard,[10] and others draw attention to the well-known dangers attending its administration ; this seems equivalent to a prohibition, for it cannot be right to risk the life of a patient in order to cure a disease not tending to shorten it, the more so when one can always at least alleviate it.

Jequirity ; this drug so well-known in ophthalmic surgery has been used with success by Uriarte,[11] in the form of an ointment. The strength advised is from 3 to 10 per cent., and the remedy is applied thrice daily ; no basis is given for the ointment, but vaseline would probably be most agreeable.

Membranous Rhinitis.—This complaint, like other pseudo-membranous affections in the upper respiratory tract, may be either due to the Klebs-Loeffler bacillus, or more rarely to other pathogenic organisms. If due to the former, the exhibition of diphtheria antitoxin would seem to be the rational treatment.

Cartaz[12] reports a case in which the disease was due to the Klebs-Lœffler bacillus, but which only yielded to large doses of **Iodide of Potash,** the sufferer proving to be syphilitic. Price-Brown[13] and Lake[14] each report cases due to staphylo-coccus albus. Here the treatment is less clear, but must be on the lines of antiseptic irrigation.

REFERENCES.[1] "Med. Rec.," Aug. 7, 1897 ; [2] "Laryngoscope," July, 1897 ; [3] "Med. Rec.," Aug. 7, 1897 ; [4] "Journ. of Laryng.," Dec., 1897 ; [5] Ibid., Oct., 1897 ; [6] "Ann. des mal. de l'oreille," June, 1897 ; [7] "Brit. Med. Journ.," Oct., 1897 ; [8] "Ann. des mal. de l'oreille," etc., Nov., 1897 ; [9] "Arch. Lat. de Rin. Lar. Otol.," April 6, 1897 ; [10] "Amer. Journ. Med. Sci.," March, 1898 ; [11] "Arch. de Ginecopatia, etc., Barcelona," Aug. 15, 1898 ; [12] "Rev. Hebd. Laryng.," etc., Sept., 1898 ; [13] "Domin. Med Month.," April, 1898 ; [14] "Laryngoscope," Sept., 1898.

RINGWORM. *T. Colcott Fox, M.B.*

George Pernet[1] analyses one hundred and thirty cases observed in the Skin Department of University College Hospital, and confirms the conclusion arrived at by others that the very great majority of London cases of ringworm of the scalp are caused by the small-spored fungus (*Microsporon audonini*). In other respects also the author practically confirms previous observers in London.

H. Lyle[2] advocates the following plan of treatment in chronic cases : (1,) Keep the heads entirely shaven ; (2,) Scrape the patches with a Volckmann spoon, and then, by means of a piece of cotton wool rolled round the end of a glass rod and tied there, well rub in **Sol. Argent. Nit.** (℥j ad **Proof Spirit** ℥j). Twice a week freely scrape away with the spoon the black layers and re-apply the silver solution ; (3,) Rub into the heads generally a 5 per cent. **Oleate of Mercury** dissolved in olive oil ; (4,) The silver solution may be increased in strength (℥j ad proof spirit ℥ij) as the diseased areas contracted in size.

Geo. Steele-Perkins[3] renews his advocacy of **Chloride of Sodium,** which he says effects a rapid cure in every case. He shaves the affected part, and then rubs in night and morning until the place is sore an ointment composed of finely-powdered salt mixed with a little vaseline. The sore place is healed with some simple application, and then the hairs are found growing healthily.

Gordon Campbell,[4] Assistant Physician to the Montreal General Hospital, was very successful with the following measures in combating an outbreak of ringworm in a charitable institution.

(1,) The children being all between the ages of six and ten years, the hair was kept closely cropped by barbers' clippers. Each child was provided with an easily washed cap of white cotton, which was worn continuously in the house, and replaced by a

lining of similar material in the hats or caps worn out of doors. The children fed in the common dining room before the others, and were isolated.

(2,) The method of treatment adopted was as follows: After thoroughly cleansing the scalp with water and green soap, and drying the hair carefully, **Oil of Turpentine** was rubbed in; and immediately after, whilst the turpentine was still wet, **Tincture or Liniment of Iodine** was painted on. A somewhat thick, dark-brown scale forms in a few days, and must be removed before a further application is made. Vaseline proved to be the best application for its removal. The frequency with which applications should be made depends entirely on the tolerance of the patient. In some daily applications can be made; in others inflammatory symptoms supervene after a variable interval. Cures were effected in from eight to thirty weeks. Iodine without the turpentine was not a success.

(3,) To prevent auto-infection, **Carbolic Oil** (1 in 40) was applied over the heads every morning.

(4,) For several weeks after removal from quarantine an ointment—1 part of **Ung. Hydrarg. Ammon.** with 3 of **Lard**—was applied to the scalp once or twice a week. There is no doubt this is a good method.

Thomas[5] recommends his modification of Sabouraud's treatment for tinea tonsurans, but we do not consider it nearly as effective as the combined turpentine and iodine treatment: (1,) The *whole scalp* is painted with tincture of iodine and then carefully dried. A circle is drawn with a blue pencil round each ring, and the hair epilated for 1 cm. outside it, the rest of the hair being cut short; (2,) The patches are painted every day with the iodine until a certain amount of irritation of the skin is set up. The treatment is then suspended until the skin has regained its natural appearance, and the hair begins to grow again; (3,) The patches are shaved and the daily painting is resumed active treatment thus alternating with abstention until microscopic examination shows the cure to be complete. The only difficulty about the course is to recognise the exact time for temporarily leaving off the painting, since if continued too long a pustular eruption results and causes delay.

Herman B. Sheffeld[6] published a method in 1896 from which he obtained surprisingly rapid results, which have been confirmed by others.

After clipping the hair close to the scalp, the following application is applied over the entire scalp—more thickly over the affected spots—by means of a painter's brush, once a day for five succes-

sive days. On the sixth day it is wiped off with a rag dipped in plain olive oil:—

℞ Acid. Carbol.		Olei Ricini	110
Olei Petrolei	āā 65	Olei Rusci (German) q.s. ad	500
Tinct. Iodini	110		

Now the hair is clipped again, the scalp gently but thoroughly washed with green soap and a soft nail brush, to remove all scales and loose hair. On the seventh day the whole process is repeated for three or four successive weeks, according to the severity of the case. No epilation is necessary as a rule. The treatment is ended by the application of a 10 per cent. sulphur ointment for a few days, and finally by the following application for about two weeks:—

℞ Resorcin		Aletholis	120
Acid. Salicylic	āā 16	Olei Ricini q.s. ad	500

Aldersmith[7] sums up his wide experience of the treatment, and gives a number of prescriptions. We may refer our readers to his well-known little book on the subject. We may usefully quote the following extract given by him from the "The Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" (Churchill & Co.) in answer to the inquiry—When is ringworm cured, and a child fit to be sent to school?

"*Ringworm* (*of the Head*).—When the *whole* scalp having been examined in a good light, and any suspicious spot scrutinised with a lens, no broken-off stumpy hairs (which show the ringworm fungus when carefully examined under the microscope) are to be detected.

"It is sometimes considered that ringworm is cured when the hair commences to grow on the diseased places, but this is a mistake, for it frequently happens that diseased broken-off hairs remain; and the disease may thus exist for months or years. It is often very difficult to detect the short stumps which protrude only a sixteenth or an eighth of an inch; and it is quite useless to examine short cut-off *healthy* hairs from a suspicious spot, under the microscope, for the ringworm fungus."

Trichophytosis of the Nail.—Prof. Mendes da Costa[8] says the best treatment is to file away the diseased nail, and then apply a solution of 1 per cent. of **Iodine,** and cover with an india-rubber finger-stall.

Colcott Fox and Blaxall, in continuation of their researches, demonstrated at the Edinburgh meeting of the British Medical Association (1,) The mode of infection of the hair in the different classes of ringworm; (2,) The constancy of the crateriform culture assumed by the large-spored endothrix fungi found in London, when grown on

Sabouraud's proof medium; (3,) The occasional production of typical kerion by endothrix fungi.

Sabouraud and Breugnes have demonstrated (Acad. des Sciences) the production of hair by inoculation on man and mice of a pyogenic trichophyton.

Lastly, Malcolm Morris has published a monograph on "Ringworm in the Light of Recent Research; its Pathology, Treatment, Prophylaxis," in which those interested will find a *résumé* of the subject.

REFERENCES.—[1] "Lancet," Oct. 1, 1898; [2] Ibid., Oct. 8, 1898; [3] "Brit. Med. Journ.," Sept., 1898; [4] "Montreal Med. Journ.," March, 1898; [5] "Rev. méd. de la Suisse rom.," July 20, 1898; [6] "New York Med. Journ.," May 14, 1898; [7] "Treatment," Oct. 27, 1898; [8] "Ann. de Derm. et de Syph.," April, 1898.

SARCOMA. (See "Cancer.")

SCARLATINA. *W. Gilman Thompson, M.D., New York.*

The duration of the period through which scarlatina remains infectious is discussed by James T. Neech,[1] Medical Officer of Health of Atherton, etc., who investigated the period of detention of such cases required in various English hospitals. This period was found to vary between thirty-nine and sixty-five days from the inception of the disease. From records of fifteen thousand patients, the average isolation of whom was forty-nine days and under, the number of return cases received within a week of the patient's discharge from the hospital was 1·86 per cent., whereas when the isolation was maintained between fifty-seven and sixty-five days only 1·0 per cent. of return cases presented.

The author's conclusion is that the patients store up infective material in their lymphatic glands, and that any demonstrable enlargement of these glands should necessitate longer retention of the patients in hospital. Systematic disinfection of the nasal and oral cavities before dismissing the patients is advocated, as well as the use of a convalescent ward for a week before dismissal, in order to obtain a purer atmosphere. He regards thirteen weeks as the maximum limit of isolation to which any case, even with discharging catarrhal surfaces, need be subjected.

Several medicinal remedies such as **Cinnamon Decoction** have been recently extolled for the treatment of scarlatina, but have failed to win general endorsement. A few cases are also recorded in which **Antistreptococcus Serum**[2] has been injected with apparent benefit. The dose is 10 c.c., once or twice repeated.

J. Madison Taylor[3] contributes a very practical paper upon "the complications of scarlatina" with valuable details of treatment.

REFERENCES.—[1] "Brit. Med. Journ.," Sept. 25, 1897; [2] "Yot and K. Gordon Hospital," Aug. 14, 1897; [3] "Philadelph. Polyclin.," Aug. 28, 1897.

SCIATICA. *Græme M. Hammond, M.D., New York.*

Colleville[1] has employed hypodermically a solution of **Guaiacol** and **Chloroform** in the treatment of sciatica. He uses a mixture of 6 parts of guaiacol to 10 parts of chloroform, and injects from 15 to 30 minims directly into the most painful part.

In a thesis published in the "Journal de médicine de Paris"[2] it is recommended to apply a compress saturated with ½ an ounce of **Pure Hydrochloric Acid** over the course of the painful nerve. After this the burn is dressed with an ointment and bandaged. This method is somewhat painful, and in a short time white blisters filled with serum appear, but these in turn disappear in the course of a few days. It is asserted that after the first application the patient is relieved. After a few days the treatment is repeated, but at a little distance from the first burn. In the cases treated by the author a cure was effected in from fifteen to twenty-five days.

Robin[3] recommends hypodermic injections of **Sodium Glycerophosphate,** in the proportion of 1 part of the drug to 4 parts of distilled water. He generally begins with 12 minim doses, which is usually sufficient; if not, he doubles the dose. The solution should be prepared in small quantities, but can be preserved in small sterilised bottles, each containing a single dose. All aseptic precautions should be observed, and the injection should be made deeply into the tissues at the point of greatest pain, and then successively along the course of the nerve, as far as the pain extends.

The pain may not yield after the first or second injection, but will after a series of injections. The cure is usually complete and permanent.

REFERENCES.—[1] "Therap. Gaz.," Sept. 15, 1897; [2] Ibid., June 15, 1898; [3] "Amer. Journ. of Med. Sci.," Nov., 1897.

SCLEROSIS (Multiple). *Græme M. Hammond, M.D., New York.*

Blumreich and Jacoby,[1] from an investigation of twenty-nine cases of multiple sclerosis, ascertained that in several instances the affection began in childhood, bearing out the theory of Ziegler that the disease often originates from a congenital disposition. There was but one case undoubtedly syphilitic. In six there was a possibility of an intoxication, and two were alcoholics. Eleven had been subject to traumatism. In five the disease followed promptly upon the injury, and in one case it supervened immediately. In the other five cases the trauma occurred a long time before the onset.

Although the etiology of multiple sclerosis is not clear, the authors think there can be no doubt that a relation exists between it and acute infections, intoxications, and trauma.

Mendel[2] reports four cases which he ascribes to traumatism. It is not difficult to believe that trauma may cause changes in the blood pressure and other disturbances in circulation. There must, however, be a predisposition, which probably consists of a diminished capability of resistance of the tissues to hyperæmia, and this predisposition may be either congenital or acquired, as from some infectious disease.

REFERENCES.—[1] "Amer. Journ. of Med. Sci.," Nov., 1897; [2] "Journ. of Nerv. and Ment. Dis.," June, 1898.

SCORBUTUS IN INFANTS.

Henry Dwight Chapin, M.D., New York.

Many interesting points are brought out in the report of the American Pediatric Society's collective investigation of infantile scurvy in North America.[1] More or less complete histories of three hundred and seventy-two cases enter into the conclusions of the report. Among these cases it was found that the disease is most apt to develop between the ages of seven and fourteen months inclusive. Of the cases which occurred, 83 per cent. were in private practice, and only 17 per cent. in hospital practice. The family history appeared to exert little or no influence upon the disease. Much care was taken to find the kind of feeding employed.

The conclusions to be drawn from a combined study of etiology and treatment seem justifiable only to the following extent:—

(1,) That the development of the disease follows in each case the prolonged employment of some diet unsuitable to the individual child, and that often a change of diet which at first thought would seem to be unsuitable may be followed by prompt recovery.

(2,) That in spite of this fact regarding individual cases, the combined report of collected cases makes it probable that in these there were certain forms of diet which were particularly prone to be followed by the development of scurvy. First in point of numbers here are to be mentioned the various proprietary foods.

(3,) In fine, that in general the cases reported seem to indicate that the farther a food is removed in character from the natural food of a child the more likely its use is to be followed by the development of scurvy.

REFERENCE.—[1] "New York Med. Rec.," vol. liv., No. 1, 1898.

SEA-SICKNESS. *Græme M. Hammond, M.D., New York.*

The "Medical Record" advocates the following prescription as an effective remedy against sea-sickness :—

℞ Chloroform		Compound Tincture of Lavender	℥j
Tinct. of Nux Vom.	āā gtt. x	Water	℥x

M. A teaspoonful to be taken every hour until the vomiting and nausea have subsided, care being taken to shake the bottle each time before the dose is poured out.

REFERENCE.—"Med. Rec.," Dec. 18, 1897.

SEBORRHŒA OF THE HAIRY SCALP. *T. Colcott Fox, M.B.*

Saalfeld[1] recommends the following treatment: Rub the scalp every evening with an alcoholic solution of **Green Soap,** then pour a little tepid water on the head, to thin the soap. Leave this on the head for a few minutes, wash the hair with tepid water, and, having dried the hair well, rub the following pomade into the scalp with the finger or a small brush :—

℞ Sublimed Sulphur	gms. 3-5 (grns. xlv-℥j 1/4)	Lanolin	gms. 3 (grs. xlv)
		Benzoated Lard	gms. 30 (℥j)

If the patient complains of itching, which is present in nearly every case, then one may add 30 centigrammes to 1 gramme (5 to 15 grains) of **Salicylic Acid,** previously dissolved in a sufficient quantity of rectified alcohol. The washing and the applications should be made every day, and, when improvement sets in, every eight to fifteen days.

Eichhoff[2] again calls attention to the fact that **Captol** is a very efficacious remedy for diseases of the scalp partaking of the character of chronic seborrhœa, and for the falling out of the hair when due to such affections. He recommends the following solution :—

℞ Captol		Castor Oil	0·5 gme. (ɱvijss)
Chloral Hydrate		Alcohol (65 %)	100·0 gme. (℥iij)
Tar. Acid	āā 1·0 gme. (15 gr.)	Ethereal Ess. for Aroma	—q. s.

Rub in thoroughly after washing the scalp.

Captol is a combination of tannin and chloral hydrate.

Dr. E. A. Lermitte[3] (Stamford Hill) recommends the following treatment: For three nights the head should be well washed with **Liq. Hydrarg. Perchlor.** 1 in 1000, or 1 in 500 if it does not cause irritation, and afterwards the following ointment should be rubbed into the scalp (not on the hair) every night :—

℞ Ac. Carbol.	gr. x to xv	Tinct. Benzoin	q. s.
Sulphur. Precip.	gr. xv	Lanolin	ad ℥j

Dr. A. J. Boyd (Ware) recommends the following lotion :—

℞ Chloral Hydrate	gr. 60	Aq. Laurocerasi	
Boracis	gr. 60	Aq. Chloroformi	āā ℥iij

To be applied to the scalp daily.

Jay F. Schamberg[4] says the tincture of green soap makes an admirable shampoo and cleanser for the scalp. The following are good applications for subsequent use :—

℞ Resorcin	℥ij	Rectified Spirit	℥vj
Salicylic Acid	℥ss	Oil of Bergamot	℥j
Castor Oil	℥j		

To be well rubbed into the scalp every night.

Or, a strong preparation is :—

℞ Mercuric Chloride	gr. xij	Rectified Spirit	
β Naphthol	gr. xl	Bay Rum	āā ℥iij
Castor Oil	℥j		

REFERENCES.—[1] "Indian Lancet," Sept. 1, 1897; [2] "Deut. med. Woch.," No. 10, pp. 78, 79, 1897; [3] "Brit. Med. Journ.," Feb. 26, 1898; [4] "Philad. Polyclinic," Dec. 4, 1897.

SEPTICÆMIA. *Priestley Leech, M.D., F.R.C.S.*

Several observations have been published on the treatment of pyæmic affections by means of yeast and its preparations.

S. Walter Courtney[1] gives a report of cases treated by yeast nucleinic acid. The results were good, only one case out of ten dying, but the auxiliary means employed may have had something to do with the results.

He sums up his experience as follows: (1,) The yeast nucleinic acid should be given at the earliest possible moment septic infection is suspected; typical and classic symptoms as given in the text books should not be waited for; (2,) The nuclein should always, in septicæmia at least, be given hypodermically if possible, in order to secure prompt action of the given dose. If the 1 per cent. solution is used, 30 to 40 minims undiluted may be given every three or four hours. If the 5 per cent. solution is used, from 10 to 15 minims may be given every three or four hours, but ought to be diluted with distilled or, at least, sterile water. This dilution avoids the local reaction which is sometimes caused when it is given undiluted. The 5 per cent. solution is preferable, as it is more stable. The 1 per cent. solution is not stable, as it sometimes becomes cloudy and unfit for use; (3,) The injection region should be examined daily to see if local reaction can have anything to do with the patient's increased temperature and pulse rate. If it has, it is due to one of two things :

insufficient dilution of the 5 per cent. solution, or imperfect preparation of the skin or syringe.

With regard to the treatment of septicæmia by means of anti-streptococcic serum, Drs. Nathan Raw and Hill[2] and Dr. Ball[3] report the presence of streptococci in dried serum.

REFERENCES.—[1] "Med. News" (New York), Sept. 25, 1897; [2] "Brit. Med. Journ.," Feb. 26, 1898; [3] Ibid., June 25, 1898.

SHOULDER JOINT (Arthrectomy and Resection of).

Priestley Leech, M.D., F.R.C.S.

Senn[1] describes the following insision for this purpose. The incision forms an oval cutaneous flap, which is turned upwards exposing the upper half of the deltoid muscle. The incision commences over the coracoid process, and is carried downwards and outwards in a gentle curve as far as the middle of the deltoid muscle, when it is continued upwards and backwards as far as the posterior border of the axillary space on the same level where it was commenced, that is, a point opposite the coracoid. This flap is dissected up as far as the base of the acromion process, and reflected. The acromion process is detached with a saw and turned downwards, with the deltoid muscle attached.

The capsule of the joint is now freely exposed. If the operation is done for an irreducible dislocation, the cause can now be sought for and removed. If for disease the capsule can be opened and the extent of the disease noted, and all diseased tissue removed. After removal of all diseased tissue, etc., the acromion process is replaced and held in position by two or three strong catgut sutures; if these take a strong hold of the periosteum and paraperiosteal tissues there is no need to drill the bone. In operating for disease thorough tubular or capillary drainage should be employed. The divided portion of the deltoid muscle is sutured separately with catgut when the cutaneous flap is brought down in position and sutured in the usual manner.

This operation involves none of the important tendons, muscles, vessels or nerves, and a good functional result may be confidently expected.

REFERENCE.—[1] "Philadelphia Med. Journ.," Jan. 1, 1898.

SINUSITIS. *R. Lake, F.R.C.S.*

Laubi[1] believes that the sinuses are often directly infected by way of the vascular system. The chief infective diseases affecting the accessory cavities of the nose are influenza, diphtheria and pneumonia. The maxillary antrum is only rarely affected through dental caries. The most common general complaints of patients are, unilateral discharge often with kakosmia, and unilateral nasal obstruction. As less

regular subjective symptoms, are neuralgia, headaches and mental dulness. Affections of other organs, as otitis. Occasionally recurrent erysipelas, tonsillitis, or sycosis nasi.

Nasal polypi are found in a proportion of about 35 per cent. It should be considered an axiom, that, in all cases of sinusitis, polypi when present should be completely ablated, if possible prior to operation on the sinus.

If in the middle meatus, pus generally comes from the maxillary antrum, the frontal sinus, or anterior ethmoidal cells. If above the middle turbinate, it comes from the posterior ethmoidal cells or the sphenoidal sinus.

Frontal Sinus: Acute Sinusitis Symptoms.—The clinical signs of this are, according to Gradinego,[2] that it is preceded by an acute coryza; neuralgic pain occurs over the affected sinus which lasts ten to twelve days ; it is accompanied by photophobia and lacrimation ; percussion over the sinus elicits pain ; buccal transillumination reveals unilateral shadow in this region.

Wenner[3] adds the following symptoms in advanced cases: The chief one is cephalgia, and pain on pressure either on the forehead or in the orbit, and the nostril on the affected side was abnormally dry. He also failed to obtain cultures of any micro-organisms from the pus.

Treatment.—**Phenacetin, Quinine,** or **Antipyrine**, and the application of a 10 per cent. solution of cocaine to the hiatus, *i.e.*, anteriorly to the anterior extremity of the middle turbinate. Warm saline injections are also of service.

Waggett[4] gives five points of advantage of the Ogsden-Luc operation: Efficient removal of diseased structures ; Free drainage ; Easy performance; Primary union of edges of wound ; Absence of disfigurement.

Photaides[5] has invented a long silver drainage tube which he advises should be used in obstinate cases to pass into the nose.

A point of considerable importance, is that the operation cannot be considered either complete, or likely to be of lasting benefit, unless all obstruction is removed from the region of the nasal orifice of the infundibulum. That is, enlargements of the anterior extremity of the middle turbinate, and polypoid masses beneath it, must be excised.

The gravity of this complaint is amply exemplified by the reports of intra-cranial complications reported. Rafin[6] evacuated a large frontal abscess successfully, whilst Blessig[7] Ramond[8] and Forestier[9] report fatal meningitis following pathological perforation of the cranial vault. In the latter's case pus had travelled up in the diploe of the frontal

bone to its highest point before perforating the inner table. In this connection Valude[10] points out the value of optic papillitis as an aid to diagnosis.

Causation of Maxillary Sinusitis :—St. Hilaire[11] narrates two cases of empyema of the antrum of Highmore, in which the direct cause was plugging the nose for hæmorrhage.

Mucous cysts of the antrum would appear to be commoner than usually supposed. Alexander[12] reports six cases, the symptoms being, frontal headache, dull feeling in head, frontal pressure and giddiness, none of them diagnostic. Treatment must be by tapping. A frequent recurrence of nasal polypi is said to be the chief ground for a suspicion of their presence.

Tubercular Disease may account for some of these cases, as is shown by the report of a case by Gaudier.[13] In this case inoculation gave positive results.

Diagnosis : Transillumination.—The light test should give a positive diagnosis in the great majority of cases, according to Knight,[14] except in asymmetrical antra. He also observes that dark reflex *alone* is not sufficient justification to open an antrum, and is very adverse to exploratory puncture.

Laubi[15] is a strong advocate for exploratory puncture in suspected cases, through the natural opening, the so-called fontanelles in the middle meatus, through the outer wall of the inferior meatus. (He says, immediately below the anterior end of the inferior turbinate.) We would remind our readers that the puncture must be 25 centimètres from the entrance of the vestibule in order to miss the nasal duct. If the puncture does not demonstrate the presence of pus Laubi recommends aspirating, and if this also fails, blowing or syringing down the cannula, and taking note at the same time whether or not the pus appears at the same time in the middle meatus.

Treatment.—Meyjes[16] uses a tube for the alveolar opening, which has the following peculiarity. The tube has a flat almost circular top, hinged to the edge of which is a small lid, in the middle of which is a projecting knob, which shuts up the tube after irrigation has been carried out.

Osteoplastic resection of the anterior wall is advocated by Senn[17] as a modification of Caldwell's operation. A rectangular flap is made through the mucous membrane down to the bone, in such a way that the anterior vertical incision lies just behind the canine eminence. The bone corresponding to this flap is cut through with a chisel. This is then prised upwards, the antrum explored and treated as necessary, and a counter opening made with the inferior meatus. A small semi-

circular piece is then cut out of the bony flap, and a drain passed through into the nose; the flap is then replaced and secured. This is an operation more likely to meet with favour than that of Bonninghaus,[18] who removes the inner osseous, or nasal wall, and invaginates the mucosa, and allows the epithelium from the mouth to spread in and join in lining the antrum.

Douglas[19] relates the case of a child who at the early age of three weeks had antral empyema. The right cheek was swollen, the eyeball protruded, the eyelids and conjunctiva were congested, and the palate bulged. Incision and irrigation were practised with a rapidly curative result.

REFERENCES.—[1] "Journ. of Laryng.," Aug., 1897; [2] "Ann. des mal. de l'oreille.," June, 1897; [3] "Cleveland Journ. Med.," April, 1898; [4] "Treatment," April 14, 1898; [5] "Ann. des mal. de l'oreille," May, 1898; [6] "Lyon méd.," June 13, 1897; [7] "St. Petersburgh Med. Woch.," No. 26, 1897; [8] "Soc. Anat. Paris," March 18, 1898; [9] "Arch. f. Laryng.," July, 1897; [10] "Arch. Internat. de Laryng.," etc., July, 1897; [11] "Journ. Laryng.," Aug., 1898; [12] "Arch. f. Laryng.," Band vi, Heft 1; [13] "Ann. des mal. de l'oreille," No. 44, 1897; [14] "Laryngoscope," July, 1898; [15] "Journ. Laryng.," Aug., 1897; [16] "Monats. f. Ohrenh.," No. 1, 1898; [17] "Pacific Med. Journ.," Dec., 1897; [18] "Arch. f. Laryng.," Band vi, Heft 2; [19] "Brit. Med. Journ.," Feb. 5, 1898.

SKIN DISEASES: ELECTROLYSIS IN. *T. Colcott Fox, M.B.*

Brocq[1] has an elaborate paper summarising his results in one hundred and ten cases in which he has operated by **Electrolysis** in *hypertrichosis*. Dr. Allan Jamieson has published a careful analysis of this paper in the "Edinburgh Medical Journal," of which we make free use. A battery capable of providing with unipolar electrolysis currents of from 2 to 5 milliampères is necessary. The electrode attached to the positive pole consists of a cylindrical metallic handle, covered with chamois leather, moistened with slightly salt water. The needle-holder connected with the negative pole is linked to the machine by a very fine cord, for the sake of lightness. The needle is of platino-irridium, very thin, and an inch long, bent at an angle of 45° a quarter of an inch from its point. This enables one to gauge more accurately the depth it has been inserted into the skin; it renders the introduction easier, especially in certain regions, as within the nostrils or beneath the chin. Before undertaking the treatment, where there are many hairs, the advantages and drawbacks associated with this should be explained; it ought also to be tested on a few hairs to determine the approximate dose of electricity necessary, the reaction of the particular skin, and the mode of cicatrisation. A commencement should be made with feeble currents,

scarcely half a milliampère, increasing rapidly in intensity till that suitable is reached. The patient is seated or reclining, the part to be operated on steadily supported. She should herself control the current. The positive electrode is placed on a thick towel on the patient's knees, resting on silk to ensure insulation. After the needle has been introduced into the follicle, she is directed to grasp the electrode, putting first one and then more fingers on it, finally pressing it with more or less force, in proportion to the intensity required.

Hardaway[2] places the positive electrode in a small bowl or tumbler of water, and establishes the connection by the patient inserting one, two, or three fingers, as may be required. This has many advantages. When Brocq considers that the hair is sufficiently acted on, he desires the patient to leave go the electrode; thus there is no shock, and the needle is now withdrawn. This method requires some preliminary instruction, but, as in this way pain is lessened, it is soon learned. To determine the approximate depth of the follicle, so that the needle should reach but a trifle beyond the papilla, a hair should be extracted and measured against it. For downy hairs, currents of 1 or 2 milliampères suffice; for those of medium size and depth of implantation, 3 to 4; and even very large hairs demand only about 4 or 5 for their destruction. Different individuals and different regions react variously. Some skins yield very easily; such are in general those which are fine white, and dry; those on the contrary which are thick, greasy, and pigmented, resist. As to the time during which the current should be allowed to pass, if the hairs are large and in situations where slight white marks are unimportant, this may be allowed to go on till a minute brown circle forms round the needle, say about ten or fifteen seconds after froth has appeared on the surface. If on visible parts, where the least scar is undesirable, one should arrest the current as soon as a yellowish-brown halo shows itself. In the instance of downy hairs, a duration of from five to fifteen seconds may be enough. The electrolytic action appears to go on after the needle has been withdrawn, the alkali set free at the negative pole exerting its caustic effect still; it is thus best either to allow some minutes to elapse before exercising traction, or to wait till the end of the séance; if any then resist, the patient should be instructed to remove them herself in the evening. Subsequent to the operation the skin swells, may blister, and become indurated for a short time. There is no thoroughly satisfactory method of obtaining cutaneous anæsthesia during the operation. Hairs must not be operated on in too close proximity at one sitting. A proportion of

the hairs operated on grow again, but the proportion largely depends on the skill and care of the operator. Whether the operation stimulates the coarser growth of downy hairs is doubtful.

George Thomas Jackson,[3] of New York, in an article on "Electrolysis in Diseases of the Skin," thus gives the *modus operandi*. Seat the patient in the chair with a head-rest and a good light. With suitable forceps seize the hair to be removed, and with the other hand pass the needle (in its needle-holder attached to the negative pole) down alongside the hair in the follicle in the direction in which the hair grows for about $\frac{1}{8}$-inch. The current is *then* completed by making the patient place her hand on the sponge electrode connected with the positive pole. Gas bubbles up alongside the needle, and in half a minute, or less, the hair slips out *with hardly any traction*. The patient then removes her hand from the positive electrode and, finally, the operator removes the needle. This method is less painful than inserting and removing the needle, whilst the current is going on. Strength of current, $1\frac{1}{2}$–2 milliampères. A follicle is not to be entered a second time at any one sitting, and the follicles selected at a sitting must not be in too close proximity to one another. The frequency of séances must vary, say every four days for the same side of the face, but patients react differently. Jackson disinfects the skin before the operation with peroxide of hydrogen to prevent the formation of pustules.

Jackson advocates the use of electrolysis for the removal of *nævi of all sorts*, *dilated vessels of rosacea*, *fibromata*, *lupus vulgaris* or *erythematosus*, *milium*, *molluscum*, *powder stains*, *xanthoma palpebrarum*. *Telangiectases* are removed by passing a steel broach (No. 3) into the lumen of the vessels with a current of $1\frac{1}{2}$ to 2 milliampères (negative pole). *Spider nævi*, similarly, should have the central punctum attacked. *Port wine* or *claret marks* may be attacked by passing a No. 5 broach, attached to the negative pole, under the nævus just beneath the skin, or better still the point of a fine cambric needle at a slight angle, making a series of punctures not too close to each other and in parallel lines across the patch, the sites of entry having been previously marked out. The needle should go through into the subcutaneous tissues or lower corium, and the operation has to be done over and over again in the attempt to destroy the vascular supply. *Cavernous nævus* may be obliterated, except when the surgeon's aid is needed for very large and rapidly growing tumours.

We refer our readers to Jackson's article for details of treatment of many other affections, and will only notice further one or two points.

A Button Electrode, consisting of a round zinc plate of $\frac{1}{2}$-inch

Fig. A. Showing the Constricting Bandage round the head.

Fig. B. Showing Trephine Openings and Shield in position.

diameter, with a current of 5 to 7 milliampères passed for six to seven minutes, is used for patches of disease. The patch blanches, swells, and exudes moisture which crusts. After the fall of the crust the operation may need repetition.

C. W. Allen [4] and Jackson use varieties of little, flat-bladed, sharp-edged needles or tenotomy knives, to cut away warts and other growths. The little knife is passed under the middle of the growth, and the tissues melt away with much bubbling of gas. Gentle pressure causes the instrument to work its way out (not cut its way) very slowly, and then the other half of the growth is dealt with similarly. *Xanthoma* of the eyelids has been successfully dealt with by a No. 5 or 7 broach.

REFERENCES.—[1] "Ann. de derm. et de syph.," Aug., Sept., Oct., Nov., 1897; [2] "Journ. Cutan. and Gen.-Urin. Dis.," New York, Sept., 1897; [3] "Med. Record," June 4, 1898; [4] Ibid., Jan. 25, 1896.

SKULL SURGERY (Advances in).

Seneca D. Powell, M.D., New York.

It is not my intention in this short paper to attempt to cover any part of the work of other surgeons, nor to speak of the conditions for which my operations have been performed. I wish only to demonstrate that the skull can be opened and the brain inspected and operated upon without any very great danger to the patient, and in doing this I must of necessity confine myself to a description of my own method of operating upon the skull. The conclusions which I have reached in this paper have resulted from the study of one hundred and four craniectomies in children, and fifty-seven operations upon adults. In March, 1891, I made a craniectomy upon a child four and a half years of age at the New York Infants Asylum, of which Institution I was then Attending Surgeon. I followed out Lannelongue's operation for microcephalus, using the instruments recommended by him. The operation occupied twenty-three minutes, and the patient suffered very much from shock subsequently, but fortunately made an excellent recovery, and is to-day a living demonstration of the great benefit which in some instances has resulted from this operation.

My second operation was in the following June, upon a child thirteen years of age. The period occupied by the operation was twenty-two minutes, from the time the first incision was made until the wound was completely closed. The same instruments (bone forceps, conductor's punch and gouge) were used. The child was removed from the table in great shock, and died within twelve hours of the operation.

About this time many surgeons in many parts of the world had been following the lead of Lannelongue, and from every direction came the dictum that in order to avoid the great mortality which followed this operation, as little time as possible should be taken to complete it. This view generally maintained among the surgeons throughout the United States, and time was considered of more importance than any other factor involved. I could see no reason why the skull cavity could not be invaded with as little danger as the abdominal cavity, provided the contents of that cavity were protected from any injury; in other words, it occurred to me that the mortality must be attributed to the method of operating more than to anything else, and that the length of time occupied was not a factor demanding serious consideration. This view was more forcibly impressed upon me after my second operation, when I found the palm of my hand studded with blood-blisters, which had resulted from the use of the conductor's punch.

We are all familiar with the fact, that if an innumerable number of successive blows of even a moderate amount of force be produced upon a nerve filament, or along its course, even though the concussion is hardly perceptible at the time, the nerve or the tissues to which that nerve is distributed becomes numb. This is easily demonstrated in a common way by riding a bicycle for some distance over a cobble-stone or rough pavement, where the vibrations will be rapid, though not of much force. I have known this to result in complete loss of the use of both hands for the time being, the numbness in some instances lasting for several hours.

Those who have noticed the construction of the conductor's punch and the method of using it, will see at once that it is absolutely impossible to protect the brain from a blow when the bone is bitten through. It will be noticed that the under lip of the punch is three-eighths of an inch in thickness. It is oblong and rounded in shape, and when it is introduced underneath and grasps the bone it must, of necessity, press very firmly on the brain tissue. If we take the skull of a child, of ordinary thickness, we shall find some difficulty in biting away pieces of bone, and we shall find it necessary to use considerably more force than will be appreciated at first. Now, if we combine with this a desire to hurry through the operation, unconsciously, in our haste, taking a larger bite of bone in the grasp of the punch, we can realise the result when this piece of bone is bitten through. In most cases requiring the operation of craniectomy, the skull is thicker than normal, and of a harder and firmer consistency. Again, in most of these cases the brain is of a firmer

consistency, and seems to fill the skull cavity completely, so that it is crowded up firmly and compactly against the skull at all points. Consequently, when a slight blow is received upon the brain tissue, it produces more shock than if other conditions prevailed.

I fail to see why, other things being equal, the brain should not be operated upon as free from risk of this kind as other vital parts of the body, and it was upon this idea that I devised a method of overcoming these series of concussions which, in my judgment, was the cause of the great mortality of skull operations. It was also a serious consideration to devise some way of performing this operation quietly and expeditiously without subjecting the patient to any risk. The results in the operations which I have enumerated have verified the conclusions which I drew. Of the one hundred and four craniectomies, six have died. Of the fifty-seven operations upon adults, none have died from the shock of the operation. In many of them the operation was futile owing to the conditions under which the operation was performed. Among the deaths of the craniectomies, three have died from sepsis, one from hæmorrhage (opening the longitudinal sinus, which was diverted one inch from the median line), the other two died, one seven days and the other ten days after the operation, from complications arising from teething. In none of these cases have I experienced any of the bad results or any of the serious conditions which attended the first two cases. By that I mean that the patients have been removed from the operating table without showing any shock or unfavourable symptoms other than those which always result from a serious operation. The pulse had remained good throughout; there was no pallor of the lips and skin, and the respiration was normal, even and regular.

About fifteen years ago the late Dr. Milton Josiah Roberts devised an electric saw for bone operations. The motive power and the saw were combined, and together weighed twenty-five to thirty pounds. The surgeon in using the instrument was compelled to lift this weight, which was pressed down, unavoidably, upon the skull. The force necessary to hold the instrument in position, combined with the weight of the instrument and the vibrations which resulted from the motor, were even more serious than the concussions which were produced by the conductor's punch. I witnessed several operations made upon adults with this apparatus by Dr. Roberts, and each operation was followed by most profound collapse and death. That the dangers involving bone surgery of the skull have not been exaggerated, I have but to refer those interested to the statistics upon the subject.

With this brief review I pass at once to a detailed statement of the technique of my method (*Fig.* 78).

The patient's head is shaved, and a roller bandage one inch wide and ten yards long, which has previously been thoroughly wetted, is wound about the head, just above the eye-brows, just above the ears, and just below the occipital protuberance. This bandage is wound snugly, but not tightly, about the head until it is entirely used up. The numerous thicknesses of the bandage will act as a compress upon the blood-vessels when over this is tightly drawn a strip of rubber adhesive plaster of the same width.

Fig. 78.—Powell's Electric Saw in position for operation.

One word in reference to the use of this combined bandage. The many folds of the muslin bandage act as a compress, and the muslin bandage also prevents the plaster from sticking to the scalp when we are ready to remove it. By using rubber adhesive plaster over the muslin bandage we are enabled to make and retain, step by step, a greater amount of pressure, and so control the hæmorrhage better than can be by the ordinary bandage. At least three turns around the head should be made with the rubber adhesive. The object of this band is to control hæmorrhage, which it has done most effectually in each one of my cases (*Plate XII, Fig. A*). The patient's head is placed upon a sand-bag, slightly projecting over, and held firmly on either side by an assistant, so as to prevent rolling and to enable the

Fig. C. Showing Shield in position and Saw.

Fig. D. Completed Craniectomy.

surgeon to make a straight incision in the median line. The point of a sharp, stiff-backed knife is introduced at the upper border of the bandage in the median line of the frontal bone. It is pressed down and well on to the bone through the periosteum, and the incision is carried along this median line to the upper border of the bandage at the occipital protuberance. A periosteotome is then introduced, and one-half of the scalp, including the periosteum, is dissected back until one-half of the upper skull is exposed down to the temporal muscles. As can be well seen, this incision is accompanied by what would seem to be a profuse hæmorrhage, lasting only a moment, as it is retained blood in the vessels obstructed by the bandage. The scalp is turned over and held out of the surgeon's way with a retractor. Buttons of bone are then removed with a trephine ; I use two sizes, one, five-eighths of an inch for the openings near the median line ; the other, three-eighths of an inch for the openings down near the ear. The larger openings are made at least an inch from the median line ; one of them anterior to the coronal suture well forward, the other just anterior to a line drawn from the posterior part of one ear to the other. The lower openings, three-eighths of an inch, are about an inch and a half or two inches distant, approximating the lower border of the parietal bone and converging toward each other. These openings are shown in the accompanying diagram (*Plate XII, Fig. B).* Sometimes, when the skull is elongated, the two larger openings are five and a half inches apart, and if the dura is adherent to the skull it may be necessary to make an intermediate opening. One of the shields here illustrated (*Plate XII, Fig. B*), made of German silver, three-eighths of an inch wide, and a thirty-second of an inch in thickness, and varying from four to seven inches, is slightly curved by drawing through the fingers, then introduced between the dura and skull, and carried from one of the larger holes above downward to one of the smaller openings and brought out. This shield protects the dura from any possible injury. The amount of bowing of the shield will depend upon the thickness of the skull ; the object being that the end of the shield shall remain in apposition to the inner surface of the skull while it is being pushed onward (*Plate XIII, Fig. C*). One of the buttons of bone which have been removed is then placed against the edge of the saw, and the cutting depth of the saw is regulated by the screw seen at the top so as to conform to the thickness of bone. The saw is then driven along this line on either side, so that the width of bone corresponding to the width of the two openings is cut through. The piece of bone is then lifted out as a whole. The same step is then taken for the

corresponding openings. A shield is then carried forward from the posterior incision to the anterior incision at its shortest approximating point. If obstruction is met, the shield can be redrawn and started from the other direction. This step is kept up until the obstruction is overcome and the shield projects through the opposite opening, when both ends can be firmly held and the shield gradually pushed over until it lies well in the two larger openings. A strip of bone is then taken between these two points, and the width will depend upon the object of the surgeon. The sharp angles projecting upward anteriorly and posteriorly are then removed by the same method (*Plate XIII, Fig. D,* and *Plate XIV, Fig. E*). If the trephine has left any sharp spiculæ, they can be removed with an ordinary bone scoop. If the cutting depth of the saw is properly adjusted, the surface left is perfectly smooth. The dangers to be avoided in this step are the opening in the sinuses and injury to the brain tissue. I have on several occasions punctured the dura with the shield in breaking up the attachment between it and the skull. Upon one occasion, previously stated, I opened the longitudinal sinus. The opening left after cutting off the angle of the bone where the larger trephine has been used in an ordinary craniectomy measures about an inch and a half in diameter. When the operation has proceeded thus far, very little remains to be done which concerns the subject of this paper. Flaps in the dura can be made, and it can be turned back and the brain tissue inspected or invaded, at the surgeon's option. The edges of the bone should be made perfectly smooth. There should be no projections and no spiculæ.

It has been my custom to keep the surface flooded with sterilised water at blood temperature during the entire operation, the idea being to prevent shock resulting from undue exposure and chilling of the brain if the room should be cold ; and also to wash away the detritus resulting from the use of the saw, and to keep the saw from becoming overheated.

If it be the object of the surgeon to inspect a large area of brain tissue for the purpose of removing a tumour or emptying a cyst or abscess, and he wishes to remove a plate of bone, it can be readily done, as we may see, with only one line of connection between each opening. This plate can be kept in a normal saline solution at blood temperature, and replaced after operation. I have done this in one instance where the skull at its thinnest portion was five-eighths of an inch in thickness. In passing, I might say that this particular patient left the hospital seven days after operation, and is now alive and well, so far as surgical operation was concerned. If a drain is necessary

Fig. E. Completed Craniectomy.

Fig. F. Showing line of Union after Operation.

to relieve an abscess or cyst, it can be brought out through one of the openings made by the trephine, and a counter opening made through the scalp. The operation being now practically completed, the scalp is folded back into position, and a few stitches of silkworm gut are taken to hold the edges of the wound in apposition; or we can hold them very readily and sufficiently snugly by the use of short strips of rubber adhesive plaster. I put in no drain in a case of craniectomy, and have at no time had any reason to do otherwise. Compresses of gauze, wet in a 2 per cent. solution of carbolic acid and wrung dry, in sufficient quantity to cover the entire skull, about half an inch in thickness, are thus applied; these being held in position by a roller bandage skull-cap. After the dressing is complete the combined bandage encircling the head is cut and removed.

There are a few points of interest in reference to this instrument to which I would call attention. The weight of the instrument is very little more, if any, than that of a surgeon's saw, and, also, the arrangement of the hand-guard is such as to allow the surgeon to have perfect control over his instrument in a position which makes him master of the situation; the entire weight of the hand and instrument being balanced on the little finger, which acts as a fulcrum, and enables the surgeon to move the saw backward and forward, as necessary, delicately and surely. Having obtained knowledge of the thickness of the skull in the case to be operated upon, we can readily set the gauge so as to prevent the saw from going in deeper than the thickness of the skull. In that way we shall undoubtedly guard the dura from injury, if we have not placed the shield properly beforehand. The electric current is transmitted through a cable (similar to that used on a dental drill) to the saw, and can be controlled by the surgeon through a button on a foot-plate, or by an assistant. The motion of the saw is steady, continuous, and free from vibration. The saw-blade is very thin; the teeth are widely set, so that the liability of fixing the saw-blade in the bone is remote. The amount of pressure necessary to drive the saw forward through the skull is infinitesimal. I have had different sized blades made for this saw to adapt it to the uses of bone surgery in general, wherever applicable, such as the removal of the head of the humerus, making incisions, removing exostoses, and particularly operations upon the spinal column. The working of this instrument is so delicate that a shaving from the edge of the skull can be cut the entire length of the incision and of the thickness only of ordinary paper.

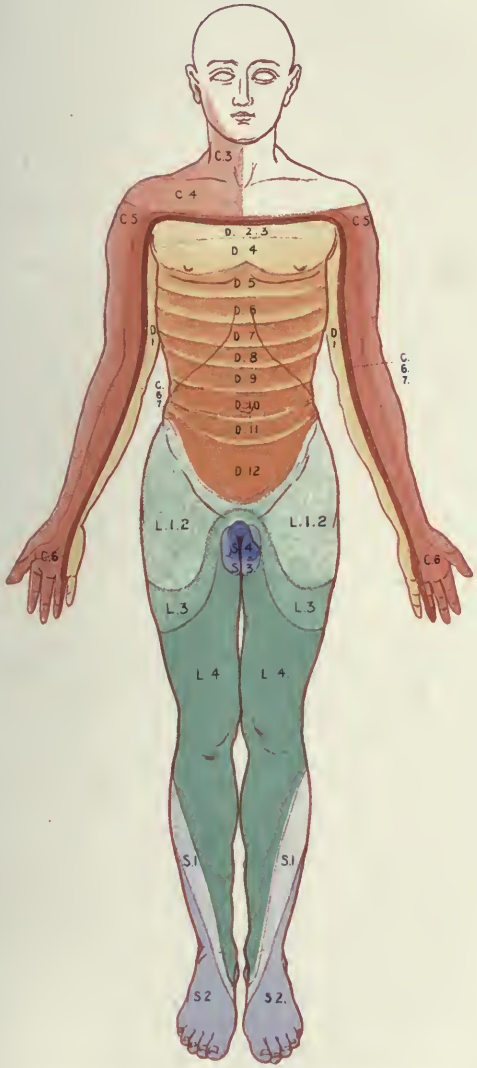
SPINAL CORD (Surgery of the). *William Thorburn, F.R.C.S.*

Our knowledge of the symptoms and course of those spinal lesions which are susceptible of operative treatment, has been increased by the records of various isolated cases, and in particular the segmental distribution of the spinal nerves continues to attract much attention. The magnificent work of Kocher,[1] based upon the study of a very large number of original and published cases, is by far the most important contribution to this subject, and calls for the careful study of all neurologists.

Kocher's work is best analysed by presenting his diagrams, which are here reproduced in a modified form. The delimitation of his sensory areas is represented in *Plates XV* and *XVI*, and it may be found convenient to compare these with the illustrations given in the "Medical Annual" for 1896, which indicate the conclusions formerly arrived at by Starr, Head, and the writer. Contrasting these areas with those formerly presented, we find the following points of difference and resemblance, each important root being separately considered, and the divergencies of earlier writers from the diagram now given being noted in columnar form :—

Kocher. (See *Diagram.*)	Head.	Starr.	Thorburn.
Cervical 5 ...	Not represented	Not represented	Same as Kocher
,, 6, 7, 8	,, ,,	,, ,,	Same, but see below.
Dorsal 1 ...	Rather less extensive on hand; has an area on back and chest	,, ,,	Not extended on to hand (*infra*); otherwise same
,, 2 ...	More extensive on upper limb	,, ,,	Not represented on chest and back
,, 4 ...	Nipple placed a segment lower	,, ,,	Nipple placed a segment lower
,, 5 ...	Nipple in this segment	,, ,,	Nipple in this segment
,, 9, 10, 11	Umbilicus at junction of 9th and 10th.	,, ,,	Umbilicus at junction of 10th and 11th
,, 12 ...	Much lower, and nearly in area of Kocher and Thorburn's first lumbar	,, ,,	Similar to Kocher

PLATE XV.



Sensory Distribution of Spinal Nerves (Anterior).—KOCHER.

SCOTT & FERGUSON, EDINB.

Kocher. (See *Diagram.*	Head.	Starr.	Thorburn.
Lumbar 1 & 2	2nd not represented; 1st placed in area of 2nd and of part of first	2nd lumbar is brought a long way down the leg on its inner side	Same as Kocher
,, 3 ...	Not represented	Brought down front of thigh to below knee and inside leg to foot	Brought down front of thigh nearly to knee
,, 4 ...	Not represented	Not represented: the 3rd l. fills much of the 4th l. area.	Similar, but not represented on back of limb, and of less extent in front by amount assigned to 3rd lumbar.
,, 5 ...	This root is not represented by Kocher; other writers place it on outer side of leg and foot (Starr, Head), in Kocher's 1st and 2nd sacral areas.		
Sacral 1 ...	Extends across whole front of foot and up back of leg; not in front of leg	Is far in "saddle-shaped area" at upper part of thigh.	Most extensive on foot and back of leg; not on front of leg
,, 2 ...	Confined to back of thigh and ham	Not represented	Confined to back of thigh, ham and calf
,, 3 & 4...	The 3rd is placed entirely below the 4th, the latter being over the sacrum. The genital organs are assigned to the 3rd root	Similar, but 5th sacral represented in centre of area. The genital organs are not represented.	Similar, but 3rd & 4th not differentiated in diagram. The genital organs are assigned to the 3rd root

If we consider these areas we shall find a very close similarity between those put forward by Kocher and those of the writer, while greater divergencies are noted in the case of Starr's and Head's work. The central roots of the brachial plexus are of especial interest from the light which they throw upon morphology. I have, in the diagrams of 1896, made no attempts to differentiate the sixth, seventh, and eighth cervical roots with accuracy, and I have left in the fore arm and upper arm a blank area which I regarded as probably occupied by all these roots, in the form of narrow bands running up to the trunk. The existence of such bands has not hitherto been recognised

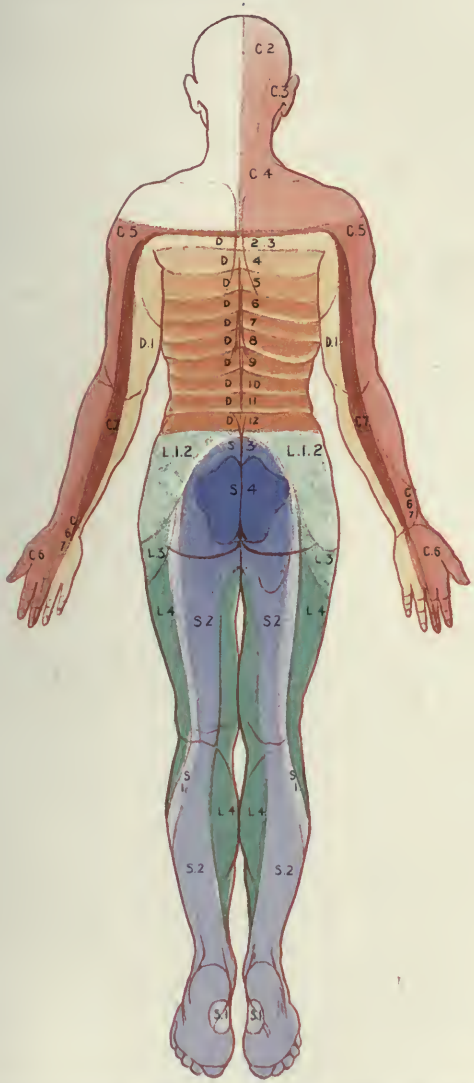
by others, and is not in accord with Sherrington's morphological scheme. Kocher now represents precisely such bands, which he assigns to the sixth and seventh cervical roots. The eighth root he does not represent at all. Kocher's first dorsal root has a wider area in the hand than has mine, and if we assume that this wider area belongs to the eighth cervical root, Kocher's scheme and my own would be in absolute agreement as regards the brachial plexus.

In the case of the trunk areas neither Kocher nor I have been able to distinguish any arrangement beyond that of horizontal bands. The complicated areas of Head have not yet been verified by other observers. The discrepancies in the localisation of the nipple and umbilicus are dependent upon details of anatomy which cannot well be here dealt with.

In the case of the lumbo-sacral plexus, the diagrams of Starr may probably now be set aside, as they differ widely from those of subsequent writers, who are in comparative agreement among themselves, and as they present inherent improbabilities referred to in 1896.[2] Head differs from both Kocher and myself in bringing the twelfth dorsal and first lumbar roots considerably lower down than we do, Kocher's work confirming the opinion previously expressed that Head has located both of these areas one segment too low. The third and fourth lumbar areas are given only by Kocher and myself, and collectively cover much the same ground, but Kocher's third area is a much less part of the whole than is mine. Kocher omits the fifth lumbar area altogether, and assigns to the second sacral the territories which Head and the writer give to the former root. Kocher's first sacral area also differs much from that adopted by Head and myself; his second sacral area includes the whole of Head's and even the whole of the larger area given by myself, with a further extension on the back of the leg and on the foot. With regard to roots lying below the third sacral, there is no marked discrepancy between various observers, except that Kocher gives the genital organs to the fourth sacral root, while Head and the writer assign them to the third. Thus, then, in the case of the lumbo-sacral plexus, Head and I are in fairly close agreement save as to the first lumbar root, where Kocher and I agree, but Kocher differs from us mainly in the entire omission of the fifth lumbar area, and in his enormous extension of the second sacral, as well as in the peculiarities of his first sacral area, and of the segmental position of the external genital organs.

Besides the sensory distribution of nerve roots, Kocher gives admirable diagrams of their motor connections, which we have also

PLATE XVI



Sensory Distribution of Spinal Nerves (Posterior).—KOCHER.

SCOTT & FERGUSON, EDINB

reproduced (*Plate XVII, Figs. A, B*), but it is not practicable here to analyse in detail these nervous connections which are as yet hardly so fully elaborated by other writers. Any such analysis would amount to little but a reproduction of previous writings of my own.

It is impossible, within the scope of an article of this nature, to refer to many of the other recent papers upon spinal localisations, but we may select as worthy of special attention papers by Mackintosh[3] and Byrom Bramwell[4]

The former records an interesting case of spinal caries with pressure upon various of the lower spinal roots, which points to the conclusion that the eleventh dorsal root occupies the position assigned to it by Head, rather than that indicated by Kocher and by the writer, while anæsthesia in the region which I assign to the third lumbar root, and Kocher to the third and part of the fourth, was traceable only to pressure as low down as the second lumbar root. In effect, Mackintosh's case "throws down" the segments one root lower than does the writer's diagram founded upon his own experiences, and distinctly lower than does Kocher.

Bramwell's case is here specially mentioned, not because it throws any light upon the moot points in regard to spinal localisation, but because it forms an admirable study of the method of examination. It is a case of myelitis involving probably the fifth lumbar and all the sacral segments, and illustrating in a less diagrammatic manner than we have done the anæsthesia resulting from such a lesion; but in the absence of a *post-mortem* examination, it can only be regarded as a good general example, and not as a link in the chain of evidence.

With respect to *tumours* of the spinal cord and vertebræ, an elaborate statistical analysis is published by Schlesinger,[5] who records fifty-six personal observations. The following are among the most important of his conclusions: Of all tumours implicating the spinal cord, 42·3 per cent. originate within the spinal canal, the remainder arising in bone; about 20 per cent. arise within the cord itself, and 22 per cent. originate from its membranes, nerve roots, and other accessory soft parts. Confining our attention to intra-spinal growths, and omitting those of bony origin, we find the following order of frequency of the more important varieties: Sarcoma, 26 per cent.; tubercle, 16 per cent.; echinococcus, 11 per cent.; fibroma and neurofibroma, 8 per cent.; gumma, 7 per cent.; glioma, 5 per cent. In this analysis gummata are obviously underestimated, probably on account of their greater curability and less frequent appearance on the *post-mortem* table. Of all cases, 29 per cent. presented multiple tumours at the time of death. In about one-third of all cases was

surgical interference practicable. With nearly all previous writers Schlesinger emphasises the rarity of metastases in connection with primary intra-spinal tumours, even when these are anatomically of a malignant type.

Schlesinger also contributes valuable articles upon vaso motor and reflex symptoms due to tumours of the spinal cord. With respect to vaso-motor troubles, he defines four groups of symptoms, viz. : (1,) Paralysis of isolated vascular tracts in the limbs, leading to areas of coldness and lividity, often associated with hyperidrosis; (2,) Raynaud's disease ; (3,) Erythromelalgia ; and (4,) Transitory œdema of rapid onset and disappearance. Regarding the localisation of the visceral reflexes, he concludes that the vesical centres are probably bilateral, and situated in the third and fourth sacral segments towards their dorsal aspect. The rectal centre is at some little distance from these, and probably lies in the lower part of the fourth sacral segment.

Laehr[6] has studied carefully a number of cases of anæsthesia in various lesions of the spinal cord, and, while not adding to our knowledge of the segmental distribution of various roots, concludes that "the tracts for the sensations of pain and temperature enter the posterior horn of the same side (of the cord), that they undergo a decussation in their further course through the grey substance, and that they again leave the latter to run towards the brain in collected bundles, mainly in the lateral columns."

But little advance has been made in regard to the surgical *treatment* of affections of the spinal cord. As summarising the conclusions of large experience, we may however refer to a paper by Horsley.[7] With respect to the question of operation in recent spinal injuries, he advises : " If the lesion is acute and in the cervical region, then certainly wait. As regards the dorsal region, it would be better to wait a little. As regards the lumbar region, I do not think you want to wait to operate." This teaching differs a good deal from that of Chipault and various other recent writers, who, finding that operation in spinal injuries is seldom of much value, blame delay as a principal cause of failure. Horsley apparently still operates very freely, but does so only in selected (and delayed) cases. The writer remains unconvinced of the value of laminectomy in recent traumatic cases, except under special conditions, which have been previously discussed in the " Medical Annual." With regard to old standing cases with persistent symptoms, Horsley advises operation always, unless the cord appears to be completely divided—a position now accepted by most, if not all, surgeons. With regard to operation in paraplegia

PLATE XVII

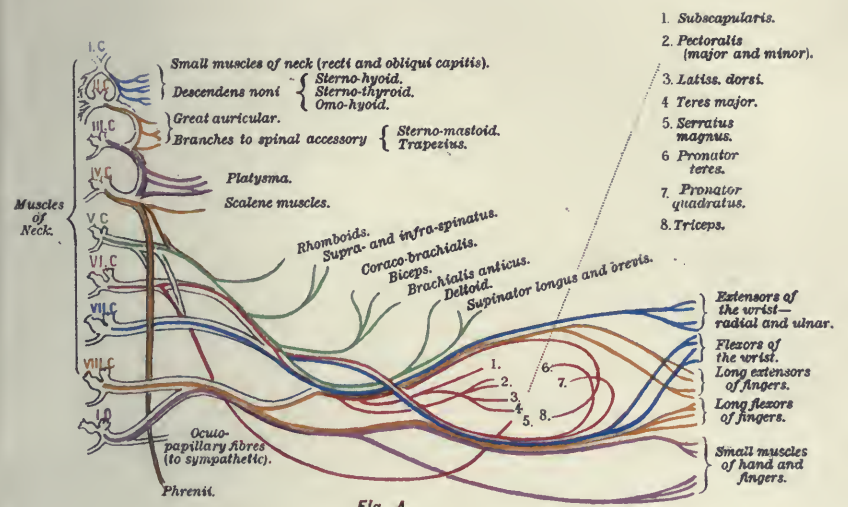


Fig. A.

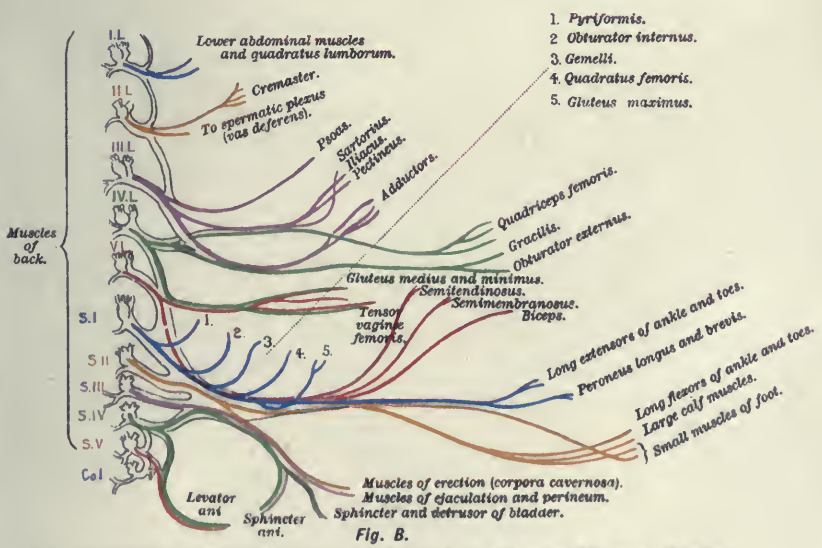


Fig. B.

***Motor Distribution of Spinal Nerves in Brachial and Lumbo-Sacral Plexuses.*—KOCHER.**

SCOTT & FERGUSON, EDINR

due to caries of the spine, it is insisted upon that we should not interfere in cases in which myelitis is present, but the great practical difficulty of recognising this condition (as apart from a mere pressure lesion) is admitted, great stress being laid upon the presence of analgesia (in adults) and of peripheral œdema which indicate myelitis and contraindicate operation. Speaking generally, Horsley adopts the rule of six months' treatment by rest and extension before operating for paraplegia due to caries.

The most interesting therapeutic innovation of recent years and that which has aroused the greatest interest is undoubtedly Calot's method of forcible straightening of the kyphosis of spinal caries. A full report with illustrations appeared in our last issue, page 441.

Chipault, whose views are accepted by Calot, has carried this procedure a step further. The patient being anæsthetised, an incision is made over the spinous processes in the region of kyphosis, which are fully exposed. The spine is then forcibly straightened, and while it is held in the best possible position, the spinous processes are fixed by a silver wire laced between them and passing through the interspinous ligaments. By this means the subsequent strain upon the plaster corset is much reduced. The operation, which has been advocated from time to time by various surgeons during the last few years, is said to yield good results, especially in recent cases of increasing curvature.

REFERENCES.—[1] "Mitteilungen aus den Grenzgebieten der Med. u. Chir.," Jena, 1896; [2] "Medical Annual," 1896; [3] "Brit. Med. Journ.," Feb. 19, 1898; [4] Ibid., April 30, and May 7, 1898; [5] Schlesinger, Gustav Fischer, Jena, 1898; [6] "Archiv f. Psychiatrie," vol. xxviii, part 3; [7] "Clin. Journ.," Jan. 13, 1897.

SPLEEN (Surgery of). *Priestley Leech, M.D., F.R.C.S.*

C. A. Ballance[1] records a successful case of splenectomy for rupture of the spleen without external wound. So far only four successful cases have been previously recorded.

The patient, a boy of fourteen years of age, had fallen ten feet on to some flags. During convalescence no serious symptoms supervened, as occur in adults after removal of the spleen, and no tenderness of bones was present at any time, but three weeks after the operation the lymphatic glands on the right side of the neck, in both axillæ, and in the left groin, were found to be obviously enlarged.

The diagnosis of ruptured spleen is made by the locality of the injury, the evidence of internal hæmorrhage, and the large *fixed* dulness on the left flank. The fixed dulness on the left loin and

splenic region is not present in intra-abdominal hæmorrhage from other organs, and is caused by this region being occupied by large quantities of clot. The dulness, therefore, cannot change with position, and is pathognomonic of the injury. Nothing less than excision can be relied upon to arrest the hæmorrhage. In the treatment of the special and serious symptoms which arise when the spleen is removed in an adult, the surgeon has the choice of various remedies—fresh sheep's spleens highly grilled, or extract of fresh spleen made with normal saline solution, red bone marrow mixed with anchovy paste to make it palatable, arsenic, and cod-liver oil.

Houjel[2] reports another case of exosplenopexy. An operation was done for supposed ovarian tumour, but a large hypertrophied spleen was found. Any attempt at removal would probably have proved fatal, so the parietal peritoneum was fixed by a continuous suture to the splenic capsule, and between the lips of the external wound a portion of the surface of the spleen, about 4 inches in width, was left uncovered by skin. The exposed portion soon became soft and gangrenous, and in a month nearly the whole of the enlarged spleen sloughed and came away. Two similar cases have previously been reported; one recovered, the other died.

REFERENCES.—[1] "Practitioner," April, 1898; [2] "Archives Prov. de Chir.," July, 1898.

STOMACH (Cancer of). (See "Cancer.")

STOMACH (Diseases of). *W. Soltau Fenwick, M.D., M.R.C.P.*

Diagnosis: Skiagraphy in Diseases of the Stomach and Intestines. —Boas and Levy-Dorn[1] have now succeeded in discovering a way of ascertaining the position of the fundus of the stomach, the existence of stenosis of the pylorus and intestines, and the amount of contractility possessed by the gastric and intestinal muscles. The principle of this method is that a capsule of gelatin filled with metallic bismuth and covered with celluloid is swallowed by the patient. The bismuth being opaque to the X rays and the celluloid not soluble in the gastric and intestinal juices the position of the capsule may be seen on the fluorescent screen without photography during its way from the stomach to the anus. In the great majority of cases the capsule was seen on the great curvature of the stomach or in the cæcum near the ileo-cæcal valve. Through the other parts of the intestines it obviously passes so quickly that very frequent observations are necessary to ascertain its position. After twenty-four hours, as a rule, the capsule was found in the cæcum. In cases of pyloric stenosis the capsule generally remains several days in the stomach,

a fact of great diagnostic value. When there is no stenosis present the capsule, as a rule, is passed in the fæces within two to six days. The method may be applied in cases of intestinal stenosis also, but it is a drawback that the capsule is not soluble, so that if it is unable to pass through the stenosis an immediate operation must be performed. Boas and Levy-Dorn intend to use capsules which are insoluble in the gastro-intestinal juices but may be dissolved by chemical agents.

Free Hydrochloric in the Stomach Contents.—Winkler [2] describes a new test for free hydrochloric in the stomach contents by means of alpha-naphthol. If a small quantity of free hydrochloric acid or filtered normal stomach contents be gently heated with a few drops of alpha-naphthol solution (5 per cent.) and a few granules of dextrose, a bluish-violet colour is developed, rapidly changing to an inky hue. A solution of grape sugar may be previously added to the alcoholic alpha-naphthol solution. Milk sugar may be used instead of dextrose, or even a few drops of milk. Boas has pointed out that three conditions are necessary for a satisfactory test for free hydrochloric acid in the stomach contents: (1,) The reaction must be definite and constant; (2,) The reaction must be absent when free hydrochloric acid is absent; and (3,) The test must give no result with organic acids. With alpha-naphthol 0·04 per 1,000, anhydrous hydrochloric acid gives a sure reaction. This test gives no reaction when there is no free hydrochloric acid present, but like Günzburg's and Boas's tests it reacts with sulphuric and phosphoric acids. Neither lactic nor acetic acid gives a reaction. Often the addition of alpha-naphthol to the stomach contents produces the reaction, since grape sugar may be present as a result of carbo-hydrate digestion.

Hour-Glass Contraction.—A case of extreme hour-glass contraction of the stomach was successfully diagnosed by Yeo [3] and operated upon by Watson Cheyne. The diagnosis was arrived at by the signs of obstruction without marked dilatation of the stomach, and by the fact that on auscultation over the middle of the organ a gurgling sound could be heard as if water was running through a narrow orifice. A successful result was also obtained by Hochenegg in a man aged twenty-five who was operated upon for a supposititious obstruction of the pylorus, but was found to be suffering from hour-glass stomach.

Congenital Stenosis of the Pylorus.—Rolleston and Hayne [4] record a case of congenital hypertrophy of the pylorus which died at the age of eight weeks. Vomiting after food had been present since birth, but no tumour could be discovered during life. At the *post-mortem* the pylorus was found to be remarkably thickened and its lumen

contracted to the diameter of a No. 4 catheter. Microscopically the mucous membrane was thrown into folds and showed some catarrh. The submucosa was much condensed. Both the muscular coats, but more especially the circular, were hypertrophied. There was no small-cell infiltration or fibrosis of the muscular coats, and there seemed to be no change beyond hypertrophy.

Dilatation of the Stomach.—According to Bettmann [5] the following statements may be made with certainty concerning acute dilatation: (1,) During the course of convalescence from some acute or chronic disease, the stomach may undergo rapid dilatation; (2,) This condition is marked clinically by a violent and sudden onset, and intractable vomiting. Large quantities of fluid are ejected, which is usually greenish, from admixture of bile. The patient is reduced to a state of collapse or exhaustion, which may prove fatal in a few days; (3,) During the progress of the disease the abdomen becomes distended, the right hypochondrium remaining flattened. The bowels move spontaneously, and a splash may be elicited over the site of the distension. The mind usually becomes clouded; (4,) If treatment is unsuccessful the distension of the abdomen increases, vomiting ceases, and the patient dies of exhaustion; (5,) The indications for treatment are, first, supportive measures; second, the use of the stomach-tube as early as possible. Rectal feeding should be resorted to, and nothing should be allowed by the mouth until the vomiting has been nearly, or quite controlled; (6,) Treatment without lavage is unavailing, and the use of narcotics worse than useless.

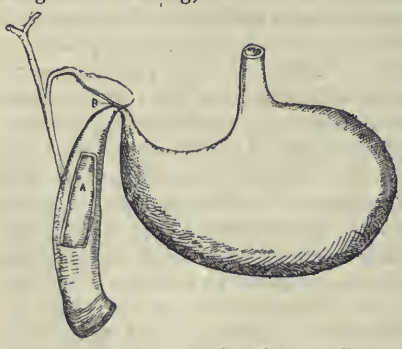


Fig 79.—Pyloric obstruction due to adhesions between it and the gall-bladder.

Chronic dilatation of the stomach may result from extrinsic causes. Thomas [6] has collected twelve cases of pyloric stenosis due to peritoneal adhesions. The original causes were various, such as tuberculous peritonitis, or former ulcer of the stomach itself; but the most common cause is inflammation spreading to the pylorus from the gall bladder, and due to calculous cholecystitis. The pyloric obstruction may be due to cicatricial contraction of the adhesions or to kinking of the pylorus which is tethered to the gall-bladder (*Fig.* 79).

Of the latter condition an excellent example has been recorded by Page,[7] and a very similar case is figured by Mayo Robson.[8]

Tuffier and Marchais[9] in their essay on pyloric obstruction of hepatic origin, refer to nine cases due to biliary causes, which have been operated on with four recoveries. Large calculi in the gall-bladder may by pressure occlude the pylorus; a hepatic abscess may have the same effect.

Gastroptosis.—Bial[10] discusses the relation of this affection to nervous gastric affections. Of great importance is the improvement produced by a mechanical treatment. By the use of a suitable binder the sensations of burning and fulness, the pains in the abdomen, unpleasant taste in the mouth, nausea, vomiting, and other symptoms of a gastric neurosis disappear. In cases of pendulous abdomen, etc., it is thus possible to restore to some extent the normal relation of parts, and to provide for the intestine a firm wall of support. The author has investigated the limits of the stomach before and after the application of a binder adapted for the purpose. He gives details of three cases in which a reposition of the stomach was brought about in this way. Bial discusses the benefits of such treatment in cases of enteroptosis in which symptoms of a gastric neurosis are present. In such cases the effects of suggestive treatment cannot be neglected. He relates in detail two cases in which general treatment without any regard to the local condition was successful. In one case hypnotic treatment was adopted. In the other the stomach boundaries were investigated by the gastrodiaphanoscope, and this formed part of the treatment. In both cases there was considerable gastroptosis. In such cases the disease is really a general one. In women an alteration in the position of the organs is very common. If the nervous system is affected, then this change in position of the viscera becomes apparent by symptoms. In such cases the trouble really arises in the centres, and not in the local conditions. The disappearance of these local conditions may not be followed by a disappearance of the symptoms, and hence the importance of the general treatment. There are cases which defy all treatment, both general and local, but in the majority of cases great improvement results.

Neuroses.—According to Soltau Fenwick[11] spasmodic stricture of the cardiac orifice of the stomach arises from the following causes: (1,) Severe anæmia occurring in young and neurotic women; (2,) Irritation of one of the abdominal viscera, such as occurs in pregnancy, in painful diseases of the uterus and its appendages, and from intestinal parasites; (3,) Catarrhal and other affections of the

œsophagus associated with hyperæsthesia of its mucous membrane : (4,) Chronic alcoholism ; (5,) Organic diseases of the stomach and lower end of the œsophagus ; (6,) Injuries to the head and cervical spine.

The disease may be either acute or chronic. The former is chiefly met with in neurotic women, in whom four distinct symptoms may be observed to follow one another, namely, dysphagia, pain at the chest, regurgitation of food, and gaseous distension of the stomach. Chronic spasm of the cardiac orifice is comparatively rare, and usually develops after some severe illness or as a sequence of a blow upon the spine.

One of the chief points of interest in chronic cases lies in the fact that instead of vomiting the food the patient acquires the knack of forcing it into his stomach by muscular effort. Thus, after swallowing several mouthfuls of food in rapid succession, the patient may be observed to take a deep inspiration and then to make a forcible expiratory effort with the glottis closed and the elbows firmly pressed against the sides of the chest. This manœuvre is repeated at short intervals during the meal until most of the food has been squeezed into the stomach.

The explanation of this curious phenomenon is to be found in the dilatation of the thoracic portion of the œsophagus which invariably results from chronic obstruction of the cardiac orifice, and which consequently forms a kind of first stomach or thoracic reservoir for the food. As soon as this sac has been partially filled, a sudden rise of the intra-thoracic pressure, brought about in the manner described, is sufficient to force a portion of its contents through the cardiac orifice. This dilatation of the œsophagus occurring independently of an organic stricture has not only been observed on the *post-mortem* table, but can be readily demonstrated during life in the following manner : In the early morning the patient is given a cup of tea, and prohibited from indulging in any forced efforts of deglutition. About half an hour later a soft tube is passed down the œsophagus until its point becomes arrested (about 40 to 48 cm. from the front teeth), when the greater part of the tea can be evacuated. After a little manipulation it is usually possible to pass the tube into the stomach and to extract the remainder. The first portion removed is neutral in reaction and turbid from admixture with mucus and food *débris*, while the rest is usually acid. If a test breakfast is employed and the tube passed one hour afterwards, the material extracted from the œsophagus is found to vary in amount from 20 to 60 c.cm , and presents no signs of digestion, while that removed from the stomach exhibits

the ordinary characters of semi-digested food, and contains free hydrochloric acid. It is also possible to wash out the dilated œsophagus without any of the fluid passing into the stomach, and a rough estimate may be made of the capacity of the tube by measuring the quantity of fluid it will accommodate. In some of the recorded cases from 150 to 300 c.cm. of water were easily retained in the dilated œsophagus.

With regard to treatment the food should be moderate in quantity and plain in quality, and in severe cases a milk diet, with rest in bed, should be enforced for a few days. If anæmia is a marked symptom, **Iron, Quinine, Valerianate of Zinc,** or **Phosphate of Manganese** should be employed, care being taken to secure an efficient daily action of the bowels. Subcutaneous injections of **Atropine** have been recommended for cases of general spasm of the muscles of deglutition, combined with hyperæsthesia of the mucous membrane of the œsophagus. The measure which meets with the greatest amount of success is the introduction of a full-sized bougie into the stomach each day, the instrument being allowed to remain in the œsophagus for five minutes on each occasion. Occasionally this procedure is accompanied by a considerable amount of pain, so that it is advisable either to allow the patient to suck a few cocaine lozenges prior to the operation, or to smear the lower part of the instrument with cacao butter, containing about 5 per cent of the hydrochlorate of cocaine. In cases of chronic cardio-spasm the nutrition should be maintained by teaching the patient to feed himself through a tube. The dilated œsophagus should be washed out each day, or after each meal if the patient swallows his food, and internal faradisation of the cardiac sphincter may be practised with a suitable electrode. In severe cases it may be necessary to perform gastrostomy.

Syphilis of the Stomach.—Dieulafoy[12] arrives at the following conclusions with regard to this disease: (1,) Syphilis of the stomach is not so rare as is commonly supposed; (2,) The syphilitic lesions of the stomach are found in various forms: hæmorrhagic erosions, ecchymoses of the mucosa, gummatous infiltration of the submucosa, gummatous plaques, circumscribed gummata, gummatous ulcerations, cicatrices of gummatous ulcers; (3,) It is probable that in these cases, as in all injuries of the stomach wall, the gastric juice continues the work of the initial ulcer; (4,) The symptoms of gummatous ulcers may recall all the indications of simple ulcers, pains at the ensiform cartilage or the spine, intolerance of the stomach, vomiting of food, hæmatemesis, melæna, and cachexia; (5,) None of these symptoms will permit us to affirm the syphilitic nature of the lesion. Whenever

the signs of simple ulcer supervene in a syphilitic, we may suppose the stomach lesion to be itself syphilitic in character; (6,) We must never fail to seek a history of syphilis in subjects of ulcers of the stomach; (7,) Under such circumstances antisyphilitic remedies—viz., **Mercurials** and **Iodide of Potassium**—are indicated; (8,) It is all the more important to be on the lookout for syphilis in stomach lesions, inasmuch as its presence enables us to cure cases that might otherwise be given over to surgical interference.

Tuberculosis of the Stomach.—Blumer[13] describes three or four shallow circular ulcers near the greater curvature of the stomach in a woman aged fifty, who had generalised miliary tuberculosis, tuberculous ulcers in the ileum, and tuberculosis of the kidneys and aorta. The ulcers were shown to have the microscopic structure of tubercle, and to contain tubercle bacilli. Tuberculosis of the stomach is rare. Blumer has only been able to collect thirty well-authenticated examples. Probably gastric ulcers in tuberculous subjects have often been regarded as tuberculous. The tuberculous lesions of the stomach may be divided into: (1,) Miliary tubercles, which are rare; (2,) Single; and (3,) Multiple ulcers. The latter are always secondary.

Cancer of the Stomach.—The development of cancer in gastric ulcer is a well-recognised sequence of events, especially at the pylorus. Hayem[14] met with a case in which the ulcer, though antecedent to the development of carcinoma as seen in the light of the autopsy, was entirely latent during life. Dieulafoy[15] diagnosed a case during life from the hyperacidity, extreme severity of the pains, and vomiting in the early stages, and the later diminution in the amount of HCl. There was very extensive ulceration, and a carcinoma composed of somewhat variously sized cells—as is usually the case when carcinoma supervenes on ulcer—had developed in one edge of it. A more complicated series of events occurred in a case recorded by Hemmeter and Ames[16] where carcinoma developed on an ulcer near the pylorus; subsequently phlegmonous gastritis was engrafted on to the old lesions, and perforation of the stomach and acute peritonitis resulted. The paper is full of careful detail, and contains a useful bibliography of ulcus carcinomatosum and phlegmonous gastritis.

Non-carcinomatous Stomach Tumours.—Schlesinger[17] says, that although the stomach has lately been much studied, the chief attention has been paid to cancer, while other tumours have received but little notice. Sarcomata of the stomach may be primary or secondary, and, as in the case of cancer, the former are commoner. Primary sarcoma may develop from any part of the organ, most usually

from the greater curvature. Lymphosarcoma differs from the others in that it occurs more often secondarily. The following kinds have been observed: spindle-celled, myo-, angio-, fibro-, and lymphosarcoma. Clinically, sarcoma of the stomach occurs late in life; the primary lymphosarcoma is apt to occur earlier than the other forms. Of thirty cases of all kinds nineteen were in females.

Loss of weight is often the first symptom; often there are no stomach symptoms in the beginning. As the disease progresses the stomach disturbance becomes marked, and there may be coffee-ground vomit. If a tumour is present, it behaves like that of cancer. There may be pyloric stenosis, with dilatation, tetany, etc. Facts relating to the chemistry are meagre. In seven cases HCl was absent, and lactic acid was found in five. In three of Schlesinger's own, blood was present in the washing. Albumin has often been reported in the urine, but so far no pepton. In all the author's cases and in many others leucocytosis was shown, with a relative diminution of the hæmoglobin. A digestion-leucocytosis has not been found. The duration of the disease is, as a rule, from one to one and one-half years. The metastases offer the most valuable guide in the differential diagnosis from cancer. Primary sarcoma of stomach may form secondaries in the skin. Those in the intestine, do not form strictures. There is very frequently a spleen-tumour. Death seems to occur more frequently from perforation than in cancer. In a few cases temporary benefit has been obtained from the use of arsenic. The author describes two cases of sarcoma of the stomach, and notes seventeen cases which were examined after death.

Gastric Erosions.—Dieulafoy [18] has collected seven cases (two his own) of superficial erosion of the gastric mucosa accompanied by violent hæmatemesis. He concludes: (1,) Besides the simple gastric ulcer, there is a form of very superficial erosion, varying in size from a sixpenny to a four-shilling piece, for which a suitable name is "exulceratio simplex"; (2,) This latter may cause even more terrible hæmatemesis than most cases of simple ulcer; (3,) The loss of substance does not extend in depth below the mucosa, including the muscularis mucosæ. The accompanying hæmatemesis is caused by ulceration of the arteries running in the muscularis mucosæ. The opening in the vessel is usually lateral, and thus in the worst position for natural arrest of hæmorrhage; (4,) Clinically the disease may present all the classical signs of simple gastric ulcer, but more often its onset is insidious or completely latent until revealed by profuse hæmatemesis; (5,) The best treatment in this form of simple erosion is by operation. The quantity of blood vomited rather than the frequency of hæma-

temesis being the indication for operation, a large amount usually coinciding with ulceration of a large artery, a fatal condition unless remedied at once; (6,) It is very important to remember while operating that the stomach may at first sight appear perfectly normal, in spite of an erosion being present. Thus, the mucous membrane must be examined very carefully, if necessary with a lens. Occasionally patches, looking like ecchymoses, may serve as a guide to the position of the erosion; (7,) In the absence of special indications it is sufficient to suture together the bleeding part with a small part of the healthy mucosa round it. The prognosis after operation for exulceratio simplex is better than for ulcus simplex, because of the limited extent of the former lesion.

Treatment of Hæmatemesis.—Robin [19] gives the following rules for the treatment of hæmatemesis arising from gastric ulcer :—

"All solid food must be given up, and an absolute milk diet should constitute the basis of the treatment; milk in such cases is not only a harmless article of food, but also helps in the cure, tending to neutralise the acids and exerting also a sedative action on the hydrochloric acid secretion. The guiding rules of this milk diet are simple enough. The patient should take at least three quarts of milk a day, in five portions, at regular intervals, so as not to over-stimulate the digestive functions. The milk should be taken cold, and preferably unboiled (if it be possible to procure a perfectly healthy milk); it should be mixed with a little lime water. This milk diet ought to be continued for six months at least, even when no further morbid symptoms supervene."

"Several objections have been urged against the milk diet. It has been supposed to dilate the stomach, already rendered prone to atony by the disease itself, but true dilatation in such cases is quite exceptional, and is more apparent than real; there is, in fact, only some distension due to spasm of the pylorus. The milk diet is in such cases the treatment of election; it does not increase the distension of the stomach, but tends to diminish it."

"Von Leube recommends a different mode of treatment. The first indication, in his opinion, is to wash out the stomach, in order to free it entirely from all fermenting matter which is apt to exert a deleterious influence on the future evolution of the ulcer. Next he injects an alkaline solution, in order to neutralise the contents of the stomach; lastly, he pours in an emulsion of bismuth. The bismuth is deposited on the walls of the stomach, constituting a regular dressing of the ulcer, which thus tends to heal up. Von Leube's method is certainly rational and may be worth a trial. The following

powder will act at the same time on the ulcer, on the hyperacidity, and on the pain :—

℞ Magnesiæ Oxide	20 grs.	Pulv. Opii	1 gr.
Bismuth Subnitratis	15 grs.	Lactose	1 gr.
Sodii Bicarbonatis	15 grs.		

For one powder. Sig.—1 or 2 powders each day in a little water.

Great care must be taken to keep the bowels open : calomel and jalap are useful for this purpose."

"When we are called to a patient who is vomiting blood, we must at once remove the clothes, put him to bed with his head low, and recommend him to remain perfectly quiet. Inject hypodermically some ergotine into the skin over the epigastrium and apply ice to the same region.

Give from 1 to 2 grains of extract of opium and then, every two hours, 1 tablespoonful of this mixture :—

℞ Ext. Ergot Liq.	ʒiij	Syrup Terebinth	ʒj
Acid Gallici	gr. xxx	Aqua Flor. Aurant.	ad ʒvj
Ext. Opii Liq.	♏xl		

M.

Continue the use of this mixture until the hæmorrhage has entirely ceased."

Various complications may arise which will have to be dealt with.

"In the event of syncope have recourse to the ordinary means ; horizontal position, head low, amyl nitrite, injections of ether or of Hoffmann's anodyne, flagellation, mustard plasters to the legs ; as a last resource, transfusion, which sometimes has a wonderful effect."

"When the patient is in danger of suffocation from the passage of blood into the larynx, introduce your fingers into his throat and practise rhythmical traction on the tongue."

"When there are symptoms of acute peritonitis, possibly indicative of perforation, prescribe absolute immobility, **Extract of Opium** internally, and injections of **Morphine** over the epigastrium."

"The patient may suffer from incoercible vomiting. This must be stopped as rapidly as possible, seeing that it keeps up, or even increases, the hæmorrhage. In addition to the classical treatment of this complication, we may prescribe :—

℞ Picrotoxin		Ergotine	gr, xv
Morphinæ Hydrochlor.	āā gr. j	Aquæ Dest.	ʒiv
Atropinæ Sulphatis	gr. $1\frac{1}{8}$	Spt. Vini. Rect.	q.s. to dissolve

M.—From 8 to 10 drops in a little water.

"In addition to these accidents, the hæmatemesis may he followed by others. The blood which has not been vomited may undergo

putrid fermentation either in the stomach or in the intestine, all the more easily in the latter organ if the patient be constipated. This constitutes a serious risk of auto-intoxication. The existence of this complication may be inferred from a fœtid odour of the last-vomited matter and also of the breath of the patient. This condition is effectually dealt with by clearing out the bowels, both by means of enemata (with glycerin, or with a tablespoonful of sodium hypochlorite) and purgatives."

"When the patient has survived the hæmatemesis and the immediate and more remote complications, he still remains, as a rule, markedly anæmic and weak. The normal treatment of this condition by means of more strengthening food being impossible, or at any rate contra-indicated by the very cause which brought it on, it will be necessary to have recourse to medicinal agents."

"In such a case I prefer the **Perchloride of Iron,** which is both hæmostatic and tonic; the other salts of iron are apt to determine congestion and thus favour a recurrence of the hæmorrhage. The iron should, of course, not be administered until the patient has ceased taking gallic acid."

"In eight or ten days stop the perchloride, as it may prove irritating to the mucous membrane if continued too long. It may then be replaced by the protochloride (which is probably transformed into perchloride in the stomach) in association with cinchona and rhubarb, as follows :—

Ferri Protochlor.	gr. ij	Ext. Cinchonæ Liq.	gr. ij
		Pulv. Rhei	gr. j

M.—For one pill. The patient to take 1 pill with each of the two principal meals."

REFERENCES.—[1] "Lancet," Jan. 29, 1898; [2] "Centralbl. f. inn. Med.," Oct. 2, 1897; [3] "Lancet," vol. i., p. 785, 1898; [4] "Brit. Med. Journ.," April 23, 1898; [5] "Gaillard's Med. Journ.," Aug., 1897; [6] "Rev. méd. de la Suisse Romande," Jan. 20, 1897; [7] "Brit. Med. Journ.," vol. i., p. 205, 1897; [8] "Diseases of the Gall-bladder and Bile Ducts" p. 73; [9] "Rev. de Chir.," Feb. 10, 1897; [10] "Berl. klin. Woch.," July 19, 1897; [11] "Brit. Med. Journ.," April 30, 1898; [12] "Progrès méd.," May 28, 1898; [13] "Albany Med. Annals," March, 1898; [14] "La Presse méd.," Aug. 4, 1897; [15] Ibid., Nov. 10, 1897; [16] "Med. Record," Sept. 11, 1897; [17] "Zeit. f. klin. med.," vol. xxxii.; [18] "Bull. de l'Acad. de méd.," No. 3, 1898; [19] "Med. Press," Dec. 22, 1897.

STOMACH (Surgery of). *Priestley Leech, M.D., F.R.C.S.*

Gastric Ulcer.—The surgical treatment of diseases of the stomach has during the last year received a great deal of attention. There is a more marked tendency to interfere surgically in cases of gastric ulcer, which do not yield to medical treatment.

Gastro-enterostomy.—During the last year a large amount of attention has been devoted to the operation of gastro-enterostomy. The number of conditions for which it has been performed has increased, and the later statistics of its mortality show very favourable results. There is still some difference of opinion as to which method is the better, the anterior or the posterior; as to whether some button or bobbin or ordinary suturing gives the best results, and many attempts, successful and unsuccessful, have been made to prevent the establishment of a *circulus vitiosus*.

The conditions for which this operation is performed are: (1,) Malignant stricture of the pylorus; (2,) Non-malignant stricture of the pylorus; (3,) Ulcer of the stomach; (4,) For grave cases of dyspepsia where medical means have given no relief.

As regards the treatment of non-malignant stricture of the pylorus there is some difference of opinion as to whether pyloroplasty or gastro-enterostomy is the better operation. Czerny[1] has abandoned pyloroplasty, but Morison[2] and Mikulicz[3] both favour its performance. Morison had eleven cases without a death, and Mikulicz's mortality is 13·2 per cent. Carle and Fantino[4] in Carle's cases give a mortality of 7·4 per cent. after gastro-enterostomy, and 7 per cent. after pyloroplasty. The mortality, however, of Carle's later cases of gastro-enterostomy is much less, as he has had twenty-three consecutive cases without a single death. From this it would appear that gastro-enterostomy will replace pyloroplasty; its advantages here are that it gives rest to any ulcer there may be, and by regular emptying of the stomach any spasm of the pylorus is relieved, and there is no danger from a recrudescence of the ulcer again causing a stenosis.

Gastrostomy.—Mayo Robson[5] enters a well-needed plea for the earlier performance of this operation. The two reasons which have brought the operation into disfavour are: (1,) It was, and is even yet, deferred until the patient is so enfeebled by starvation as to be unable to withstand the shock of any operative procedure; (3,) The enlargement of the fistula and leakage of food, and irritating gastric secretion with consequent excoriation and discomfort.

The operation he performs is a modification of the Ssabanijews-Franck method; it is simple and its performance only occupies a few minutes. The steps are as follows: An inch and a half vertical incision is made over the outer third of the left rectus abdominis, commencing three-quarters of an inch below the costal margin; the fibres of the rectus are separated, not divided, to the full length of the incision, and the posterior rectus sheath and peritoneum are divided

together, the opening being an inch in length. A portion of the cardiac end of the stomach is brought up through the wound and held forward by an assistant until four sutures are inserted by a curved intestinal needle through the base of the cone fixing the visceral peritoneum of the stomach to the parietal peritoneum (*v. Fig.* 81). A half inch transverse incision (*B. Fig.* 80) is then made through the skin an inch above the upper end of the first cut, and by means of a blunt instrument (*e.g.*, handle of a scalpel, a director or a pair of forceps) the subcutaneous tissue is undermined so as to connect the two openings beneath a bridge of skin and subcutaneous tissue. The projecting part of the stomach is then drawn underneath this bridge out of the transverse opening where it is retained by means of two hare-lip pins (*v. Fig.* 82). The lower opening is now closed by two silkworm-gut sutures or by a continuous subcutaneous stitch, and the edges are dried and covered with a little collodion and gauze.

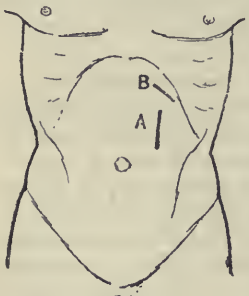


Fig. 80.

The stomach can be opened immediately by a knife introduced between the pins, but it is better to defer this for twenty-four hours. After opening a No. 8 soft catheter is inserted, to which a piece of tubing is fixed, and by means of a funnel the patient can at once be

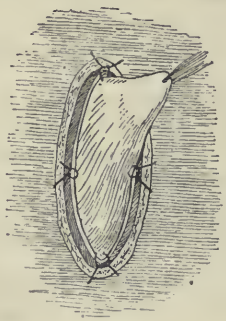


Fig. 81.

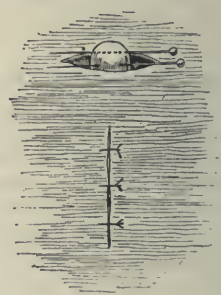


Fig. 82.

fed with warm milk and egg, or whatever liquid may be thought desirable. The catheter may be left in position for a few days, and may then be removed and inserted when required.

The late Dr. R. J. Hall[6] had before reading of Kader's operation

devised the following operation which is simpler and more speedily performed : A very short incision is made on the left side parallel to and about an inch below the free border of the ribs ; the stomach is seized and drawn through the incision until it forms a cone from an inch to an inch and a half in height, the base being next to the skin. The circumference of the base of the cone is attached to the abdominal wall by either continuous or interrupted sutures including, of course, the peritoneum. The cone is then inserted so that its apex protrudes into the stomach. If the operation is urgent the apex can be pierced at once and a tube surrounded by gauze introduced ; otherwise the cavity of the inverted cone may be filled with gauze and the opening made later. Both this and the operation described by Mayo Robson may be done under cocaine anæsthesia.

Keen [7] thinks that the time has come when, besides opening the stomach for retrograde dilatation of the œsophagus and removal of foreign bodies, we shall open it in order to make a diagnosis as we now perform exploratory laparotomy. To prevent sepsis he insists on washing out the stomach beforehand, and bringing it out of the abdominal cavity, and protecting the peritoneum with gauze so as to render the operation an extra-peritoneal one.

There still seems to be an amount of conflicting evidence about the best method for performing gastrostomy. The three methods which at present seem to receive the largest share of patronage are: Ssabanijews-Franck, the Kader-Senn, and Marwedel's. The first operation has been already described. The second operation has been performed in England by Maylard [8] and Carless.[9] Keen [10] thinks that if the stomach can be drawn out far enough the Ssabanijews-Franck method is the best, as it requires no permanent tube and does not give any trouble from leakage ; if the stomach cannot be drawn out he performs Witzel's operation, but he has never found that the tube could be dispensed with in this operation.

Willy Meyer [11] speaks well of Marwedel's operation. He has performed this operation three times. Its advantages are : It is not necessary for the patient to wear the tube continuously, as it can be re-introduced by the patient with comparative ease ; there is no leakage and no fear of the fistula closing ; the canal leading into the stomach is amenable to stretching. The patient is provided with a female silver catheter (No. 15, French), one with two large side holes, and another one with end hole and eye at the side. Either of them he introduces with ease to feed himself ; he then withdraws the tube

and the fistula closes absolutely water-tight. In the meantime he wears a piece of gauze with some ointment in the small opening. Abbe[12] prefers Senn's method, but Meyer said the opening in the stomach may close rather rapidly, and if the tube slips out it may be a difficult matter to get it back again if no surgical help is near.

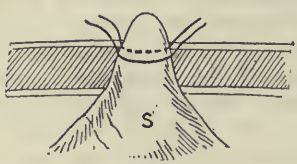


Fig. 83.

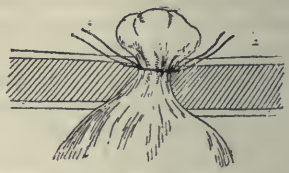


Fig. 84.

Many authors prefer doing gastrostomy under cocaine, if the patient's condition is low.

Senn's operation is as follows: After exposing the stomach it is drawn out into a cone; about two and a half inches below the apex of the cone he places two purse-string sutures of heavy catgut (*Fig.* 83), including only the serous and muscular coats of the stomach. These are drawn tight enough to pucker up the stomach (*Fig.* 84), and are then covered by an omental cuff from the great omentum. This cuff is sutured over the constriction (*Fig.* 85). The conical portion of the

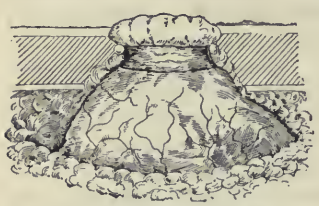


Fig. 85.—Senn's method of gastrostomy: the omental cuff applied.

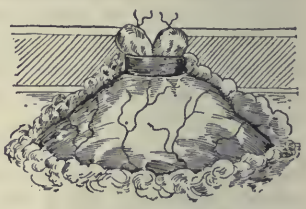


Fig. 86.—Senn's method of gastrostomy: the apex of the cone of stomach opened and inverted.

stomach is now fastened into the parietal wound with interrupted silk sutures which traverse the peritoneal and muscular coats of the stomach and the whole of the abdominal wound except the skin. An opening is either made immediately or two days later in the portion of stomach exposed, and a rubber tube introduced. The edges of the incision are now inverted, forming a circular valve, the inversion being made permanent by Lembert's sutures (*Fig.* 86). Abbe speaks highly of this method, but omits the omental cuff.

The steps of Kader's operation are as follows : A small opening is made into the stomach, and a rubber tube inserted so as to project about $1\frac{1}{2}$ cm. ($\frac{3}{4}$ inch) into the cavity (*Fig.* 87). The tube can also be fixed to the opening (which it accurately fits) by three catgut sutures.

Fig. 87.—Kader's method of gastrostomy : the tube in place, and the first row of sutures inserted.

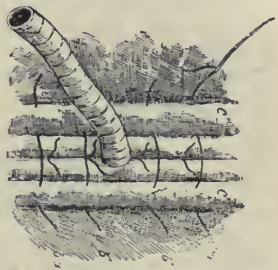


Fig. 88.—Kader's method of gastrostomy : the first row of sutures tied and the second row inserted.

A row of Lembert's sutures is then introduced horizontally and tied, and over this a second row of Lembert's sutures is tied (*Figs.* 88 and 89). The summit of these folds is then united to the parietal peritoneum, and the stomach below is united to the lower part of the incision and the incision closed (*Fig.* 90 in section).

Fig. 89.—Kader's method of gastrostomy : the second row of sutures tied.

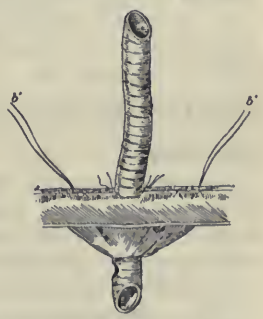


Fig. 90.—Kader's method of gastrostomy, showing the tube in place and protruding with the stomach.

Marwedel's operation is as follows : The stomach is exposed by the oblique incision and sewn to the abdominal by the usual continuous suture, and the serous and muscular coats incised for about 5 cm. (2 inches) (*Fig.* 91). These are then dissected loose from the mucosa on either side, and at the lower angle of the wound a hole is made into the stomach through which a rubber tube is passed and fastened to

the mucous membrane with a catgut suture. The serous and muscular coats are then again stitched together over the tube by means of interrupted or continuous suture. The tube thus runs between muscular and mucous layers of the gastric wall (*Fig.* 92).

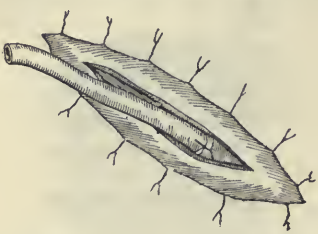


Fig. 91.—Marwedel's method of gastrostomy, showing the tube inserted through the mucous membrane.

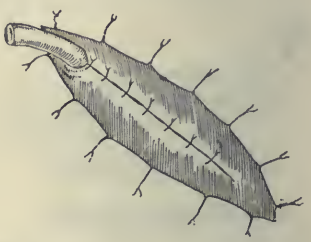


Fig. 92.—Marwedel's method of gastrostomy, showing the tube covered by suturing the muscular and serous coats over it.

REFERENCES.—[1] "Centralb. f. Chir.," No. 26, p. 117; [2] "Lancet," vol i, p. 561, 1898; [3] "Berl. klin. Woch.," No. 223, 1897; [4] "Archiv. f. Klin. Chir.," lvi, p. 1, 1898; [5] "Practitioner," Sept., 1897: [6] "New York Med. Journ.," May 29, 1897; [7] Ibid., May 7, 1898; [8] "Lancet," Aug. 20, 1898; [9] "Med. Press and Circ.," Sept, 29, 1897; [10] "New York Med. Journ.," May 7, 1898; [11] "Annals of Surg.," p. 650, May, 1898; [12] Ibid., p. 652.

STRICTURE OF RECTUM. (See "Rectum, Stricture of.")

SUNSTROKE. *Græme M. Hammond, M.D., New York.*

Chandler[1] gives the result of the treatment of one hundred and ninety-seven cases of sunstroke received at St. Vincent's Hospital during the summer of 1896. Of these, one hundred and eighty-five recovered. The temperature of the patients ranged from 105° F. to the limit of an ordinary clinical thermometer. In nearly every case the thermometer recorded at least 109° F., and in some instances the mercury reached 112° F.

Treatment was as follows: The ambulances were well supplied with ice, which was kept about the patient's head from the moment he was picked up until he was entered at the hospital. The patient was stripped of clothing and covered with a sheet, upon which were placed small pieces of ice. Large quantities of ice were laid closely about the head. Iced water was dashed upon the patient from a distance of four or five feet. This was continued about thirty or forty minutes. The most efficacious stimulant, and one which served to

arouse the patient when everything else failed, was the pouring, from an elevation, of a fine stream of iced water upon the forehead. This treatment was continued for only one or two minutes at a time. In severe cases it was repeated several times until consciousness returned.

During this part of the treatment, each patient was given 40 minims of the **Tincture of Digitalis** hypodermically in one dose. In a few cases, in which there was high arterial tension, this method was not pursued. Upon such cases venesection was performed, and later, tincture of digitalis was given in smaller doses. Meanwhile, the temperature was repeatedly taken, and when it reached 104° F. the patient was put to bed, covered with blankets, and hot bottles were placed around him. In cases in which the maximum temperature reached only 105° F. or 106° F., this course was followed upon its being reduced to 102° F. By this means the temperature, which continues to fall for some time after the cold bath is discontinued, was prevented from reaching a point so far below normal as to endanger collapse, from which few patients could rally.

At the first signs of consciousness, **Whisky** was given. This seemed to modify or prevent the convulsions which are so common. Strychnine was never given. It had proved upon trial to cause convulsions. These latter, when they occurred, were treated by **Chloroform.**

When the secondary rise of temperature appeared, a sheet, wrung from iced water, was spread over the patient, and kept wet until the temperature became normal. In some cases in which the secondary rise of temperature was very rapid, the entire ice-and-water treatment was repeated. An ice cap was kept upon the head from the time the temperature became normal until the patient was dismissed from the hospital.

Van Giesen[2] examined the brain and cord in several of Lambert's fatal cases. He found a universal acute degeneration of the neurons of the whole neural axis. In the cerebral cortex and cerebellum the cells showed the same degeneration; the cells in the spinal cord were not so extensively involved. He believes in the toxic agency of the symptoms of insolation, basing his opinion upon the changes observed in the ganglion cells. They were in every way similar to those produced by a number of poisons, such as alcohol, lead, etc., and by bacterial products. Lambert agrees with Van Giesen, and regards insolation as arising from auto-intoxication.

REFERENCES.—[1] "New York Med. Journ.," June 5, 1897; [2] "Edin. Med. Journ.," Oct., 1897.

SWEAT ERUPTIONS. *T. Colcott Fox, M.B.*

Perrin,[1] of Marseilles, writes of the eruptions of sweat origin, very commonly observed during the summer months. These eruptions coincide with abundant sweating, and consist of sudamina, miliaria, and scarlatiniform and morbilliform sweat rashes, and in adults in addition a more discrete miliaria, and some distinct cases of dysidrosis. In certain summers, when the heat is excessive and continuous (92-95°F.), and especially in children and persons whose sweat apparatus is particularly active from their occupation, etc., these eruptions are complicated by the formation of ephemeral furuncular dermites, folliculites, and hidradenitis *(Pyodermites sudorales)*, recalling the descriptions of *Boutons chauds* or *Bourbouilles*, of the Antilles.

The sites of predilection for these pyodermites are the face, scalp, neck, upper part and dorso-lumbar regions of the trunk, flexor aspects of the upper extremities. They are characterised by papulo-nodules or nodules, dermic or hypodermic, from a lentil to a pea or cherry-stone in volume, with or without the formation of pus; only a few form true furuncles. These lesions may be agglomerated, especially on the face. Scratching and rubbing and want of cleanliness may lead to the secondary formation of an impetiginous eczematous dermatitis, especially on the neck.

Perrin asks if these eruptions are due to the quantitative or qualitative modification of the sweat, or to secondary decomposition, or microbial infection. He thinks that the ever present staphylococcus finds a congenial soil and develops a special virulence and activity. This is the organism he has always found. Histologically, the nodules consist of a suppurative inflammation of the sweat glands.

Treatment consists in applying moist **Boric Acid** dressings, frequently renewed, and bathing suppurating nodules with boric acid or sublimate lotion. Regulation of the drink, emollient baths, and vinegar lotions are useful.

John Cabot[2] also records some observations on *Suppurating Hidradenitis* occurring during extremely hot weather (100°-103°F. in the shade, with a relative humidity of 85°-95°) in New York. Vesico-pustular lesions mingled with a general miliaria in various degrees of severity occurred, especially on the arms, face and chest. All ages were affected. In many the face and arms were puffed and swollen, sometimes to the extent of closing the eyes, and in some a moderate rise of temperature was noted. The vesico-pustular eruption consisted of papulo-pustules and papulo-vesicles, from an eighth to a quarter of an inch in diameter, often hard and deep seated. Super-

ficial and deep furuncles and abscesses were common. A folliculitis of the extremities especially was also observed, and urticaria, whilst contagious impetigo was quite common.

TREATMENT.—The treatment called for appears to be the relief of the skin by the administration of laxatives and diuretics, and the employment of cooling antiseptic lotions externally. The formation of pus must be stopped, or its infective properties controlled. Furuncles and contagious impetigo demand special treatment.

In this connection we may note a paper by Surgeon Gerald Sichel,[3] R.N., who describes a series of eruptions breaking out on board H.M.S. Gibraltar and Sparrow, at Zanzibar. He attempts to connect these eruptions with the *Pemphigus contagiosus tropicus* of Manson (see "Impetigo Contagiosa," page 334), but they appear to correspond in great measure with Cabot's description.

REFERENCES.—[1] "Ann. de derm.," Nov., 1897; [2] "New York Med. Journ.," Nov. 16, 1897; [3] "Brit. Med. Journ.," Oct. 30, 1897.

SYMPHYSIOTOMY. *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Indications.—Among the advocates of symphysiotomy there is some variation as to the range of pelvic contraction that calls for the operation. This is seen in the following table :—

Operator	Zweifel.	Engelmann.	Jewett.	Tarnier.	Morisani.	Leopold.	Pinard.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Upper limit..	80-85	90	—	—	85	75	80
Lower limit..	67·5	70	75	70	70	60	50

Engelmann[1] arrives at his figures thus: The indication for pubic section is to be found in the slighter disproportion, 20 mm. or less, between the biparietal diameter of the child and the true conjugate of the mother, because 20 mm. can always be gained by the operation; or, in other words, with the average fœtal head in America, in a pelvis of 70 to 90 mm. Morisani[2] holds that the enlargement obtainable is about 15 mm., to which must be added 10 mm. gained by the engaging of the bitemporal diameter. As the average fœtal head is 95 mm. in the bitemporal diameter, the lower limit will be 95 less 25, or 70 mm.

On the principle that the indication must be a relative one, Tarnier[3] advocates it when the pelvis is normal but the head very large. Pinard and Leopold (quoted by Engelmann, op. cit.) bring symphysiotomy into competition with Cæsarean section for the lower limits of the former, viz., between 70 and 50 mm. Most other operators hold that this degree of contraction is an absolute indication for Cæsarean section, and consider, with Morisani, that symphysiotomy begins where Cæsarean section ends. According to this view, the real competition of symphysiotomy is with craniotomy and premature labour, the field of contest comprising those cases where the pelvis is just too small to allow of the delivery of an unmutilated child by forceps or version, and yet not small enough to demand Cæsarean section.

The matter may be summed up in the following table :—

Operative Indications in Contracted Pelvis.

True Conjugate.	Operation Indicated.
100 to 85	*Forceps, Version, or Premature labour.* The nearer the lower limit is approached, the stronger is the indication for premature labour.
85 to 70	*Premature labour, Symphysiotomy, or Craniotomy.* If elective, induce labour prematurely, or wait till term for symphysiotomy. If at term, symphysiotomy if the child is living. Craniotomy if the child be dead.
70 to 55	*Symphysiotomy, Cæsarean section, or Craniotomy.* If the child be small, symphysiotomy is possible. If the child be large, Cæsarean section is inevitable. If the child be dead, craniotomy.
55 to 40	*Cæsarean Section*, whether the child be large or small, living or dead.

Such a table may serve as a guide, presuming that the child be of average size ; with variations in this factor, and in dealing with pelves on the boundary-lines of the above groups, the lines of demarcation between the various indications necessarily become less clear. Engelmann's lucid and terse summing up is worth reproducing : " In the main we may say that symphysiotomy pertains to the intermediate degree of pelvic contraction ; that it replaces craniotomy on the living child and premature labour in the earlier

months, and must be compared with Cæsarean section on the one hand, and high forceps and version on the other; the latter coming in contact with symphysiotomy in the minor contractions, and the former by its relative indications being almost a parallel operation."

It is worth while to enquire the reason for the infrequency of symphysiotomy in this country, seeing that "the intermediate degree of pelvic contraction" cannot be so very rare. The fact is that this area is encroached upon from above and below, and perhaps more especially from above; that is to say, that in moderate and intermediate degrees of contraction, in general practice, attempts at delivery by forceps or version are persevered in until the child is dead or the mother's condition has become critical; and for the one or the other reason craniotomy is performed.

There can be little doubt that this mode of practice results in an unnecessarily large child-mortality. The reason is to be found in the fact that the general practitioner does not regard symphysiotomy as falling within his sphere of action, as is the case with forceps or version. But that symphysiotomy can be performed in the less favourable circumstances of private practice is shown in a paper by Buist,[4] of Dundee, who reports two successful cases; and in one by Jewett,[5] who reports three cases, all of which resulted in good union of the symphyses and the birth of three living children.

Mortality.—A review of the relative mortality of high forceps, version, premature labour, symphysiotomy, craniotomy and Cæsarean section is given by Engelmann. The high-forceps operation is reported by Zweifel with a mortality of 7·3 per cent. The Dresden clinic (1889-1894) records a maternal mortality of 5·17 per cent. and a fœtal mortality of 21 per cent., 5 per cent. due directly to the operation; this with a conjugate down to 7·5 c.m. Version in this class of cases to a conjugate of 7 c.m. in the flat, and 7·5 c.m. in the justo-minor pelvis, gives a mortality of 10 per cent. (Leopold). Premature labour is practically without danger to the mother (perhaps 1 per cent. in the hands of a skilled obstetrician), but the fœtal mortality is great (40 per cent. in the cases reported by Tarnier, with a conjugate between 6·6 and 8·8 c.m.); and of these children born before the ninth month few survive the first year unless well cared for and favourably situated. Craniotomy gives a mortality of 5 per cent.; Cæsarean section, 14 to 20 per cent.; symphysiotomy, not over 11 per cent. The latter figure is that given by Harris as the result of his investigation of three hundred and three cases

up to 1895. In the hands of those who have made a special study of it, the mortality is less. Thus Pinard,[6] in the twelve months ending Dec. 7, 1896, had fourteen symphysiotomies with two maternal deaths, one from pneumonia and one from septic infection. If we exclude the former as being an accidental complication, we have a mortality of 7·7 per cent. Zweifel,[7] at the International Congress at Moscow, reported thirty-one cases without a maternal death; twenty-seven of the children survived and left the hospital in good condition.

Permanent Results of Symphysiotomy.—While Tarnier maintains that the operation does not permanently enlarge the pelvis, Zweifel has found it is followed by an appreciable enlargement, and believes that such a pelvis will permit spontaneous birth more readily than before symphysiotomy. Pinard states (op. cit.) that during 1896 five women upon whom symphysiotomy had been previously performed, were delivered naturally.

Zweifel believes that bad results after symphysiotomy are mainly due to septic infection from improper handling of the wound. He insists upon draining this wound, and making pressure upon the tissues about the symphysis with gauze and an abdominal bandage. He prefers the "open" treatment—draining the wound with gauze until it is filled with granulations.

REFERENCES.—[1] "Boston Med. and Surg. Journ.," July 8, 1897; [2] "Brit. Med. Journ.," 1898, p. 2; [3] "Ann. de gyn. et d'obstet.," Sept., 1897; [4] "Brit. Med. Journ.," 1898, ii, p. 794; [5] "Amer. Gyn. and Obs. Journ.," 1897; [6] "Ann. de gyn. et d'obstet.," Jan. 1897; [7] "Monats. f. Geburts. u. Gynäk.," Band vi, Heft 3; [8] "Amer. Journ. of Obst.," July, 1897.

SYPHILIS (Excision in). *Priestley Leech, M.D., F.R.C.S.*

Operative Intervention in Tertiary Syphilis.—Watson Cheyne[1] thinks that in obstinate cases of tertiary syphilis, which will not yield to mercury and iodide, a cure may be effected by operation. He gives the result in three cases—one of specific ulceration of the cheek, another of ulceration of the skin over both forearms, and a third of ulceration of the tongue.

He thinks that similar rebellious cases might be thus treated by excision of the diseased part and skin grafting, and that gummata and syphilitic necrosis, and osteitis and periostitis might be treated as local tuberculous lesions are treated.

Constitutional treatment must not, of course, be neglected.

REFERENCE.—[1] "Brit. Med. Journ.," Nov. 27, 1897.

SYPHILIS OF NOSE AND THROAT. *R. Lake, F.R.C.S.*

Diagnosis.—Early hereditary syphilis in children is said by Arslan[1] to be characterised by the following symptoms: Abnormality of voice varying from hoarseness to aphonia is invariably present; coryza nearly always. Cough is not a constant symptom.

By Vaughan,[2] the diagnosis of syphilitic affections of the nose and throat are discussed. Malignant disease of the pharynx and also tuberculosis are, compared with syphilis, rare diseases. He points out the diagnostic value of iodine of potassium. Under its administration malignant disease usually shows initial improvement, followed by renewed activity; tubercular disease goes steadily to the bad. Syphilitic disease on the contrary, if not improving, shows no tendency to aggravation. The larynx is not so frequently affected in the early stages as the pharynx, and pain is usually absent.

Symptoms.—Richards,[3] in detailing the history of a case of nasal syphilis, draws attention incidentally to the fact that this affection can, and at times does simulate meningitis very closely, or what would probably more nearly describe the real state of affairs, is accompanied by meningitis. Here local treatment, removal of dead tissue, etc. with energetic antisyphilitic treatment is indicated. Malignant disease, as is well known, follows the manifestations of syphilis in these localities with undesirable frequency.

Wingrave[4] reports a case of ulcer of the tonsil, in a syphilitic patient, which, under specific treatment, nearly healed; it however took an active growth again and the microscope demonstrated its true nature.

TREATMENT.—The treatment of laryngeal syphilis by means of **Intra-Muscular Injections** is the subject of a paper by Glück[5]. All the cases treated, thirty in number, were in the early stages: Erosions, mucous patches, and thickenings. He made use of a 5 per cent. solution of the **Perchloride of Mercury**; in some cases the strength of the solution was increased, in two only a 3 per cent. solution was used. About ½ a grn. was the average dose, and the average total amount used was 3 grns. Treatment lasted from eight to forty-two days, and the injections numbered from one to eight. Cure obtained in all cases.

Vaughan and St. C. Thompson[6] draw attention to the value of inunction of **Mercury** in this complaint; whilst Lieven[7] in diseases of the upper respiratory tract advocates the addition of 2 to 6 gms. of **Iodide of Potash** internally.

REFERENCES.—[1]"Arch. Internat. de Laryng.," etc., July and Aug., 1897; [2]"Therap. Gaz.," Jan. 15, 1898; [3]"Laryngoscope," May, 1898; [4]"Journ. of Laryng.," April, 1898; [5]"Wein. Med. Woch.," Nos. 1, 2, and 3, 1897; [6]"Laryngoscope," Jan., 1898; [7]Ibid., May, 1898.

TETANUS. *Græme M. Hammond, M.D., New York.*

Du Hamel[1] reports a case of tetanus occurring in a boy fifteen years old. He had been injured between the thumb and index finger by a pistol shot. The wound was not properly cleansed, and some time later tetanus set in. He was taken to the Pasteur Institute, and in addition to hypodermic injections of **Antitetanic Serum,** three cubic centimètres of a similar fluid was injected in each side of the brain near the fissure of Rolando. At the time the injections were made the boy was in a condition of severe opisthotonos. The spasms gradually diminished, though they did not entirely disappear for several days. In three weeks he was discharged.

As a preventive, from 10 to 20 cubic centimètres of serum should be injected at the time the wound is received. If symptoms of tetanus set in, injections should at once be begun, and repeated at intervals until a cure is effected.

Recently a young man of Parsaic, N.J., sustained a severe injury. The wound gave every evidence of healing properly, when suddenly tetanus developed. Antitoxin serum was injected without effect. As a final effort it was decided to inject the antitoxin directly into the brain. This was done, with the result that almost immediately there was a relaxation of the muscles of the jaw. Since then improvement has been steady and constant.

REFERENCE.—[1] "Med. News," Oct. 22, 1898.

TETANUS IN CHILDREN.

Henry Dwight Chapin, M.D., New York.

Dr. Dunlop[1] places his therapeutic suggestions for the treatment of tetany, on his conception that it is due to toxic poisoning. He advises the removal of the poisonous material by freely washing out the stomach and intestines; and at the same time administers small doses of **Calomel, Benzonaphthol,** or **Hydrochloric Acid,** with the object of checking the decomposition and fermentation of the intestinal contents.

REFERENCE.—[1] "Edinburgh Med. Journ.," No. 502, 1897.

THORAX (Surgery of). *Stephen Paget, F.R.C.S.*

In 1896, the writer published an account of the surgery of the chest which, it is hoped, gave a fair and clear view of the results obtained up to that time. Since then several important books have appeared on the subject: the first part of M. Polaillon's "Affections Chirurgicales du Tronc," M. Terrier's "Chirurgie de la Plèvre et du Poumon," M. Tuffier's "Chirurgie du Poumon," and the magnificent

conjoint work, long hoped for, by Dr. Kingston Fowler and Mr. Godlee, "The Diseases of the Lungs and Pleura." Beside these books, many valuable essays and reports have been published; especially those in the Transactions of the American Surgical Association for 1896 and 1897, and in the Transactions of the Moscow Congress; and Dr. Rehn's[1] account of a successful operation for wound of the heart. It is proposed to say something here about M. Tuffier's book, and Mr. Godlee's part of the "Diseases of the Lungs and Pleura," because these two authorities supplement one another: M. Tuffier gives us a careful analysis of the whole literature of the subject, with tables of cases reported from many countries; and Mr. Godlee gives a closely-written practical statement of his own experience, which is, perhaps, unparalleled in this country. Finally Dr. Rehn's case of heart-suture must be noted.

I.—M. Tuffier's "Chirurgie du Poumon."

After a short historical note, and some consideration of the general signs of these cases, M. Tuffier observes that exploratory puncture, in the general run of cases, is not a sure guide: "Out of eighty-five cases, in nineteen it failed, and in twelve more it had to be done from two to twelve times." He then takes up the all-important question of the presence or absence of adhesions:—

"Clinical authorities assure us that the following signs are in favour of the existence of adhesions: (1,) Previous attacks of pleurisy; (2,) Either very rapid or very slow advance of the infection of the lung; (3,) Pain localised at one point; (4,) Indrawing of the intercostal spaces during inspiration; (5,) Retraction of the base of the thorax. We know also that a needle, passed into the lung, will follow its movements, and that the amplitude of the oscillations will be in proportion to the freedom of the lung. All these observations and deductions are excellent, but not one of them can give us positive certainty, as I have often found by experience."

But, as a matter of fact, out of two hundred and fifteen operations for septic diseases of the lung, adhesions were found in one hundred and ninety (87 per cent.); only in twenty-four of these one hundred and ninety the adhesions were soft and insufficient. If there are no adhesions—if you see, through the pleura, the greyish-red surface of the lung working up and down, with its lobules outlined in black—then you must not run the risk of setting up septic empyema *plus* pneumothorax: you must suture the lung all round in your wound, and go on with the operation. If there are no adhesions at the point where you are working, but you feel sure the lung must be adherent

somewhere in the neighbourhood, you may either open the pleura just enough to admit your finger, and feel for them, or you may practise "décollement" of the pleura, loosening it slowly with your finger off the ribs, and feeling through it for some indurated portion of the lung. If, when you open the pleura, the lung falls back, you must draw it forward at once and fasten it in your wound; and if you do set up pneumothorax, you had better aspirate it at once. For incising the lung it is best to use a knife, following it up with your finger; but the cautery has its uses in some septic cases. The fear of hæmorrhage is worse than the reality: "this trouble is frequent in theory only." If you fail to find the cavity in the lung, its contents may yet make their way into a drainage-tube left in the track of your wound.

M. Tuffier then points out the wide difference of results in septic and aseptic cases. Taking first the aseptic cases, he gives a table of nine recorded cases of *wound of the lung* treated by operation; the general result of them, so far as they go, being clearly in favour of interference in cases where all other treatment has failed. Next come cases of *hernia of the lung*, a subject more familiar to M. Tuffier than to most of us, as he has twice operated, with success, for the "radical cure" of it. He gives this general rule: if the prolapse is recent, and the parts are aseptic, make gentle trial of reduction, and if it succeeds, put in a drainage tube; but usually the prolapse cannot be reduced, and ought not, and then it should be tied at the level of the intercostal space, and cut off, leaving the stump unreduced, and closing the wound with a tube in it. Of the *removal of a nodule of new growth in the lung* he has collected seven cases, all of them sarcomata, secondary to sarcoma of the chest-wall. The results were good, but there is, of course, great risk of pneumothorax, and it is absolutely necessary that the lung should be firmly sutured all round to the chest-wall. The cases of operation for *hydatid of the lung* give excellent results. The disease, left to itself, has a very high mortality, but, by incision of the lung, fifty-five out of sixty-one cases were cured (90·1 per cent.). Exploratory puncture is forbidden; and the surgeon may be certain that he will find adhesions.

The surgical treatment of *tuberculosis* M. Tuffier divides into (1,) Excision of a tubercular apical nodule in the early stage of the disease; (2,) Incision of a tubercular cavity. Of the first operation, on the strength of the three famous cases—his own, Mr. Lowson's, and M. Doyen's—he still speaks hopefully: "I do not despair of seeing my colleagues repent their ostracism." Of the second, he has collected thirty-six cases, and he admits that the results are not so good as

might be expected from the "engaging simplicity" of the operation. Of the treatment of an old tubercular cavity by a plastic operation on the chest-wall, he gives three cases, of which one only was thoroughly successful. "The thoracoplastic operation is indicated in old, rigid cavities, inactive, yet exposed to secondary infection."

Abscess of the lung is more rare than we think. Cornil never saw a case, nor did Potain; but M. Tuffier has collected forty-nine cases: "many of these were probably suppurative pleurisy between two lobes after pneumonia." Out of the forty-nine cases, twenty-five were due to pneumonia, six to septic embolism, and five to foreign bodies. Out of twenty-eight exploratory punctures, sixteen were successful, five failed, and seven had to be done again and again before the pus was found. In 80 per cent. of the cases, the abscess was in the lower lobe. Adhesions were present in most of the cases; but in nine they were wholly absent, and in four they were insufficient. The results obtained were as follows: out of six treated by puncture only, four were cured and two died; out of forty-three treated by incision, thirty-three were cured and ten died. In seven cases, the operation altogether failed. The causes of death were pyothorax, disease of the opposite lung, abscess of the liver, meningitis, chronic septicæmia, and failure to find the abscess. Primary abscess is much more hopeful than secondary (metastatic); acute abscess, opened early, is much more hopeful than chronic abscess. In four cases, a sinus remained after operation. It is in the chronic cases that the operation is most likely to fail, where the wall of the abscess-cavity has become tough and thick.

Bronchiectasis (forty-five cases) may be easy both to diagnose and to localise, but very hard to estimate. In forty of the forty-five cases, it was at the base of the lung. It often ends in septic inflammation elsewhere; six cases died of cerebral abscess, three of amyloid disease. The quantity of the sputa gives no guidance: it may come from a multitude of small cavities; in four cases, where it ranged from 200 c.c. to 1 litre daily, there was no large cavity. In bronchiectasis, exploratory puncture very often fails; out of twenty-six cases, it succeeded in fifteen and failed in nine, and in four it had to be done again and again. The only surgical treatment is the incision of the lung. Free resection of the ribs (two at least) is especially needful in these cases; the tissues must be well exposed; the chest-wall must have a chance of falling in. Adhesions were present in forty out of the forty-eight cases; in five they were wholly absent; in three they were weak and insufficient. The thickened and adherent lung is so altered, that neither the eye, knife nor finger can recognise it. "De

Cérenville assures us that the lung-tissue in these cases bleeds more than the thickened pleura, and is less resistant, even when it is toughened; and these are useful signs worth noting, but for my part I have not made much out of them": it is necessary to cut slowly straight through a solid block of tissue till a cavity is seen or felt that can be laid open on a director. Irrigation of the cavity is forbidden. The results of treatment depend on the form of the dilatation. Out of fifteen cases of true saccular bronchiectasis, fourteen were cured; in two of these the first operation failed, but a second operation succeeded. A small electric lamp is very useful in the wound.

Foreign bodies in the lung (eleven cases) may be reached through the lung; it is impossible to reach and incise the main bronchi. Of the eleven cases, four died, but only one of them directly from the operation. Adhesions are often absent in these cases. Not one of all the cases recovered absolutely and finally. Our best hope, if we interfere by incising the lung, is to operate early, before the lung has become septic.

Gangrene of the lung (seventy-four cases) is, in the great majority of cases, circumscribed, not diffused. It is very hard exactly to localise the disease. If it be a small area of the lung, exploratory puncture is not unlikely to fail; out of thirty-four punctures, twenty-three succeeded, six failed, and five had to be done again and again. The most favourable cases for operation are those of acute circumscribed gangrene, secondary to pneumonia. It is with gangrene of the lung that the cautery is most useful. Much difficulty is experienced in cleansing the sloughy wall of the cavity. Happily, adhesions are present in the great majority of the cases: out of seventy-four cases, they were found in fifty-four; they were present in the neighbourhood of the wound in fourteen more, and were absent in six cases only. If they are not met with, the lung must be fastened in the wound, and the pleura drained low down. If cough persists after operation, withdraw the plugs a little way, or shorten the tube; but the cavity must be firmly plugged at first, for there is always some danger of secondary hæmorrhage. Irrigation is forbidden. If the temperature keeps high after operation, suspect an unopened cavity, or imperfect drainage, or some fresh infection. The cavity must be drained a very long time; in one case it took ten months to fill up.

II.—Dr. Fowler's and Mr. Godlee's "Diseases of the Lungs and Pleura."

If I say less of this magnificent work than of M. Tuffier's book, it is because every English doctor ought to buy the book and read it for

himself. Moreover, I am concerned only with Mr. Godlee's part of it; and his teaching is already known to our profession. One of the best things in the book is his splendid account of the anatomy of the lungs and pleura. The whole surgical treatment of pulmonary cavities of all kinds he includes in one chapter, and divides them thus: (1,) Acute abscesses following on pneumonia; (2,) Bronchiectatic cavities; (3,) Tubercular vomicæ; (4,) Chronic non-tubercular cavities; (5,) Cavities caused by the presence of foreign bodies.

An *abscess* arising from acute gangrene, or as a result of the inflammatory process in pneumonia, should always be submitted to operation. If it has just recently burst into a bronchus, the surgeon should wait a day or two, to see if the case improves; but not for long. It must not be supposed, however, that this is a perfectly simple operation; the localisation of the cavity is often extremely difficult. "Apart from this risk of failure to find the cavity, those cases are least hopeful in which the abscess is most acute, in which there is reason to suspect affection of the opposite lung, and in which the expectoration has the dark brown colour with that particularly filthy smell which is so characteristic of the disease. And those cases are altogether beyond the reach of surgery, where collapse and gangrene follow upon the accumulation of septic material which has collected in the bronchi, from pressure of an aneurysm, cut-throat, tracheotomy, etc."

Of the surgical treatment of *bronchiectasis*, Mr. Godlee does not speak with much praise; and both authors are in favour of patient and prolonged trial of **Creasote Vapour-Baths**; a full account of them is given by Dr. Fowler earlier in the book. "From whatever cause the bronchiectasis may have arisen," says Mr. Godlee, "the cavity is always of a complicated nature. An incision into one part of such a branched cavity can do nothing in the way of draining the others." You do good for a time, then fresh cavities are formed, and intercurrent maladies arise. "I cannot, therefore, encourage surgical interference in cases of bronchiectasis pure and simple, unless it can be shown that there is a high probability of the disease being confined to a very small part of the lung. In a few such cases, recovery may take place."

As for the surgical treatment of *tubercular cavities*, Mr. Godlee holds to what he wrote in 1887, that in some cases, with single apex-cavity and troublesome cough, not only might the symptoms be relieved, but the danger of the spread of disease into the other lung might be to some extent lessened. "I have never yet been asked to operate upon a large tubercular apex-cavity. I have,

however, treated several cases of tubercular cavity in other parts of the lung. One of them at least healed, though the patient died subsequently of pulmonary tuberculosis; but in others the sinuses remained open, and the patients have appeared to be benefited by the escape of a certain amount of the discharge externally."

With regard to *foreign bodies*, Mr. Godlee reminds us that the immediate effect of the lodgment of a smooth foreign body may be very slight; and that we must be very careful not to reject a patient's statement that he has "swallowed" a foreign body. "It is an accident that forcibly impresses itself upon his mind. . . . If he remembers the occurrence at all, he is not likely to be mistaken about it." In every case of unilateral bronchiectasis, we must bear in mind the possible presence of a foreign body. And "it is very important to remember that a very short residence of a foreign body in a bronchus may give rise to an amount of bronchiectasis from which recovery is impossible."

The following are in full Mr. Godlee's conclusions on pulmonary cavities:—

(i,) Gangrenous cavities should always be sought, and, if possible, opened; if the operation be successful and the opening free, the prognosis is not bad.

(ii,) The same treatment should be applied to abscesses caused by the rupture of purulent collections from other parts into the lung; at least as regards the pulmonary complication.

(iii,) Abscesses caused by the presence of foreign bodies should be opened; and if the body be not found, it should be remembered that, if of any considerable size, it probably lies not more than three inches from the middle line. If possible, these cases should be treated early by tracheotomy and inversion.

(iv,) Bronchiectatic cavities when single—a very rare condition—may be cured by operation; when multiple—a very common condition—they offer a very small chance of relief by our present methods; still it may be wise in some cases to make an attempt to open the main cavity, if such is to be found; but only after it has been ascertained that the lung is adherent to the chest wall.

(v,) Basic tubercular cavities sometimes require the same treatment as is applied to other pulmonary cavities.

(vi,) It is not usual to open apex-cavities, though this may be justified by an extremely harassing cough. Such operations cannot be expected to be curative.

(vii,) Tubercular cavities may be treated by injections, either through the larynx or through the chest wall; but intralaryngeal

injections appear to be practically valueless, and little is to be hoped from intrapulmonary injections.

I have no space left for any abstract of Mr. Godlee's other chapters. For paracentesis, he recommends the sixth or seventh space in the midaxillary line; for empyema, the ninth rib, just outside the angle of the scapula; for distended pericardium (uncomplicated pyopericarditis), the fifth left interspace close to the sternum. "The pleura will probably have been obliterated by adhesions, but it should not be assumed that this is the case. The incision should therefore be made carefully in the intercostal space; and if a healthy pleura is met with, it should be turned aside." If sufficient room is not obtained, it is better to take away a little from the cartilage above and the cartilage below, than to cut any one cartilage across. Whether the pericardium be incised or aspirated, this point should be kept to, close to the sternum.

Every page of this book is valuable, and these quotations are useless, except as evidence that the whole book should be carefully studied.

III.—Prof. Rehn's "Ueber Penetrirende Herzwunden und Herznaht."

A man, twenty-two years old, was stabbed over the heart with a knife, and fell unconscious. He lay thus for three hours, then managed to walk three hundred paces, fainted again, and was found, ghastly pale, sweating, and gasping for breath. Was admitted to hospital at 3.30 a.m., collapsed, pulse hardly perceptible, severe dyspnœa. In the fourth left space, three fingers' breadth from the edge of the sternum, a wound 1½ cm. long, not bleeding. Heart sounds clear; heart-dulness increased toward right. Lungs appeared normal, so far as they were examined. At 9 a.m. his general condition was improved, but that afternoon he had dulness on the left side of the chest up to the seventh dorsal vertebra; the heart-dulness was increased, its apex-beat was diffused, its sounds were clear.

Next day, 9 a.m., he was much worse, had passed a very restless night; pulse small and irregular, heart-dulness increased toward right, and passing over toward left into a lung-dulness reaching up to the axilla. In the evening he seemed dying; cyanosis, frightful dyspnœa, resp. 76, pulse very feeble, left side of chest dull almost to apex of lung, and hardly moving in respiration. Heart pushed over toward right; sounds clearly heard. The wound pulsated, and was very tender all round.

Operation.—Free incision in fourth space; fifth rib cut through just inside the nipple line, and inner fragment bent out of the way; internal mammary artery found not wounded; finger went into pleural cavity. Pleura freely laid open; pericardium clearly exposed, showing a small wound, with dark blood running uninterruptedly out through it. This wound was enlarged, its edges clamped with forceps, and the heart clearly seen. There was a quantity of blood and clot in the pericardium: "this did not hinder us from seeing, in diastole, a wound about 1½ cm. long in the right ventricle; blood was flowing out of the heart through it." Digital pressure stopped the bleeding. "I decided at once to suture the wound; a fine intestinal needle was used, with a silk suture. At the beginning of diastole, the needle was passed quickly, deep through the left end of the wound; it seemed to me that the diastole was this time somewhat prolonged. At the next diastole, the suture was tied; again the heart appeared to linger in diastole. The hæmorrhage was diminished, and gentle traction on the first suture made it easier to pass a second; but we were frightfully anxious, for every time we steadied the heart it seemed to stop in diastole. After the third suture, which was made especially difficult by the movement of the heart, the bleeding stopped altogether; the heart fell to work, and we breathed again. The pleura was washed out with salt solution; the pericardium and the pleura were drained with strips of iodoform gauze; the piece of rib was replaced, and the wound partly closed."

The date of this brilliant operation was Sept. 9th, 1896. The patient recovered, and in April, 1897, was in good health, and his heart was "working regularly, even better than it did before it was wounded."

Reference.—"Archiv. f. Deutsche Chirurgie," 1897, lv, p. 315.

THYROID (Operative Dislocation of). *Priestley Leech, M.D., F.R.C.S.*

A. Wölfler,[1] of Prague, gives this title to an operation whereby the thyroid gland is raised from its bed, where it causes functional disturbances, and attached under the skin and sterno-mastoid at a higher point, so that the trachea, recurrent nerve, and œsophagus, are relieved from presssure.

This operation is indicated in the following conditions:—

(1,) In cases of recurrence, where a greater part of the thyroid has been previously removed.

(2,) Where one-half has been removed, and it is found that the remaining half is in a position, between sternum and trachea, to cause a future stenosis of the trachea if it should enlarge.

(3,) In rare cases where the surgeon has removed the larger lobe of the thyroid, and then finds that the compression symptoms are due to the smaller half which has been left.

In all these cases dislocation of the thyroid is indicated. It may also be had recourse to when in young people an enlarged thyroid lies under the sternum.

The operation is done as follows: The first steps are as in extirpation, and the part of the gland to be dislocated is bluntly separated and drawn out from its capsule; any veins are carefully tied, but the arteries are left alone; the gland is then placed in the region of the cricoid cartilage; a silk thread is then passed through its upper and lower portions; each end of the thread is passed through the skin and sterno-mastoid, and tied over a roll of gauze laid upon the skin. The other pole of the gland may in the same way be fastened to the sterno-mastoid and the skin of the other side if necessary.

REFERENCE.—[1] "Beiträge zur klin. Chir.," Band xxi., Heft 2.

TIC DOULOUREUX. *Græme M. Hammond, M.D., New York.*

Bergonie[1] believes, from a study of fifteen cases of tic douloureux, that **Electricity** applied according to his method affords the best method of relieving, if not of curing, that affection. He uses the continuous current obtained from piles or cumulators, and not from electrical batteries. The current should never be less than 35 milliampères, and often over 50 milliampères. The positive electrode, which should have an area of from 200 to 250 square centimètres, should be moulded over the entire painful area on the face. The negative electrode may be placed over the spinal cord.

Each application should certainly last for fifteen minutes, and often for half an hour. At the expiration of this time the skin under the positive electrode will be found to be almost, if not quite, anæsthetic. The deeper tissues are similarly affected, so that the muscular actions involved in speech, mastication, etc., no longer produce pain.

REFERENCE.—[1] "Brit. Med. Journ.," Jan. 23, 1898.

TICK FEVER IN CATTLE. *David Hardie, M.D., Brisbane.*

I am indebted to Mr. P. R. Gordon, Chief Inspector of Stock, Queensland, for giving full particulars of this disease in cattle.

It first appeared some years ago in the Gulf district, and was popularly called "red-water disease." Mr. Pound, Government Bacteriologist, discovered that the animals were covered with myriads of ticks (*Ixodes Bovis*, Riley, *Boophilus Bovis*, Curtis), and correctly

looked on these as the cause of the disease ; hence the name "Tick Fever." Subsequently it was found to be similar to the Texas fever of America.

Sheep, horses, rabbits, guinea pigs and pigeons are immune to the disease.

The ticks, it was found, attach themselves to some part of the animal ; the female ones mature in from fourteen to twenty-one days, drop off, deposit from 1500 to 2700 eggs on the grass, and die. The eggs hatch in from three weeks to forty days, according to the warmth and humidity of the climate.

The life cycle of the tick, according to American authorities,[1] may be thus tabulated :—

(1,) Period of incubation (on the grass), twenty to forty-five days.

(2,) Parasitic stage (on animal), twenty-one to twenty-three days.

(3,) Age of one generation, forty-one to sixty-eight days.

The disease is principally confined to the coast watershed, where vegetation is rank and the climate humid. Dating from the time of invasion, the period of incubation of the disease is about ten days, the symptoms being a rapid rise in temperature from 101·5° (normal) to 106°, 107°, and 108° caused by destruction of the red corpuscles, hæmoglobinuria and anæmia. The corpuscles may be reduced from 7,000,000 per c.c. to one third of that number, and this is considered by American authorities as the most reliable sign of the disease. Death generally takes place in from five to six days after the temperature has reached its maximum.

The mortality of a first attack varies from 50 to 75 per cent. A first attack, however, does not render the cattle immune to a second attack, when the mortality ranges from 10 to 20 per cent.

Calves suffer from only a mild form of the disease, and in the district in which the ticks first appeared ; all the cattle born since the advent of the ticks, and which must have been infected while still calves, have remained immune. The disease is therefore tending to die out in this district, though the ticks are probably as plentiful as ever.

The destruction of the red corpuscles is caused by a micro-organism, which the investigators of America and Australia class as a protozoan. These bodies are pyriform in shape, and in the acute stage of the disease are generally found in pairs inside the red corpuscles. In the early stage, they are found outside the blood cells and actively mobile, and invariably possess a flagellum, which enables them to move freely in the serum and penetrate the corpuscles. These are the organisms with which the ticks inoculate the animal, and which have a

remarkable power of reproducing themselves in the organs of circulation. They are found in the blood for years after the recovery of the animal. So far as at present known, the tick alone can communicate the disease, and it has been proved by Mr. Pound that they can do so when hatched in the laboratory.

It being suggested by Drs. Wynne and Macdonald that the fever is caused by the evolution of a toxin, Dr. Hunt injected subcutaneously into a healthy animal, 3 ounces of defibrinated blood taken from an animal in the acute stage of the disease, with the result that no reaction set in, and the cattle succumbed when placed in a tick-infested district. After having first passed the blood through a Pasteur-Chamberland filter to remove the organisms, Mr. Pound[2] conducted a similar experiment and with similar results.

As regards treatment, arsenic, sulphur and lime have been tried, but so far with negative results. It has been observed by the inspecting staff and by many observant cattle owners that the mortality is always high on pastures on balsaltic formation. This, taken in conjunction with the well known fact that no deaths have so far occurred among tick-infested cattle in pastures on cretaceous formation (the grasses and herbage on which are of a highly saline nature) may yet afford a clue, in Mr. Gordon's opinion, to a successful means of treating the disease.

In the hope of producing immunity, Dr. Hunt and Mr. Pound have of late been inoculating healthy cattle with defibrinated blood from an immune animal—preferably a calf—and so far with very satisfactory results. From 5 to 10 c.c. of this blood are injected directly into the blood stream through the jugular vein, or under the skin behind the shoulder. A typical reaction then sets in, and when the cattle, so treated, are placed in a tick-infested district they remain immune. It remains to be seen whether this immunity is universal and permanent. The result is certainly all the more remarkable when it is borne in mind that a first attack of the fever, contracted in the natural way from ticks, does not prevent a second in which the mortality may be as high as 20 per cent.

REFERENCES.—[1] "Report of the Bureau of Animal Industry, United States Department of Agriculture," 1891–92; [2] "Queensland Agricultural Journ.," 1897; "Tick Fever," by C. J. Pound.

TONGUE (Diseases of). *R. Lake, F.R.C.S.*

Leukoplakia: Etiology.—Lieven[1] points out the favourite positions of leukoplakia as (1,) Angles of the lips; (2,) Anterior end of tongue to right or left of the middle line. The disease generally develops from chronic catarrh of the mouth, due in its turn to excessive smoking,

highly spiced foods, courses of mercury, etc. Syphilis is undoubtedly the chief predisposing condition.

Diagnosis, provided the etiology be correctly appreciated, should present no difficulty. One symptom of chronic oral catarrh is of considerable value, viz., swelling and hypertrophy of the interdental fold of mucous membrane, and formation of a horizontal ridge on the mucous surface of the lower lip; these are certainly due to mercurial inflammation.

TREATMENT.—Regarding treatment, Lieven strongly objects to caustics. He corrects dietetic errors and has the mouth frequently washed out with weak alkaline lotion. Deep and painful fissures require the galvano-cautery. In syphilis a three or four weeks' course of **Mercurial Inunction** was completely satisfactory. Hopmann[2] recommends the application of a solution of **Ferri-Pyrine**, followed by **Methyl-Violet.** H. Niemeyer[3] used, in one case, the daily application of Schwimmer's solution of **Papayotin,** viz:—

℞ English Papayotin 1 part | Distilled Water / Glycerin āā 10 parts

M.

Lymphatics of the Tongue.—According to Kuttner,[4] lymph from one side of the tongue flows away on both sides. The lymphatics form a network on the surface, cross the sides perpendicularly, then form a second network. The lymph channels run to the deep cervical and submaxillary glands; some, however, run directly to glands lying deep in the neck just above the sternum. From the posterior part of the tongue they run to glands about the carotid. The most important lymphatic glands of the tongue are, then, the deep cervical and submaxillary, and Kuttner considers these should be methodically cleared out in every operation for lingual carcinoma.

REFERENCES.—[1] "Journ. Laryng.," July, 1897; [2] Ibid.; [3] "Practitioner," April, 1898; [4] "Journ. Laryng.," Aug., 1887.

TONSIL (Diseases of). *R. Lake, F.R.C.S.*

The Supratonsillar Fossa.—According to Paterson,[1] who has examined anatomically a large number of cases, the supratonsillar fossa is important as a starting point of infection. Suppuration may be met with in the fossa in a variety of forms; papilloma frequently grows from the plica triangularis, and malignant disease may start around the opening of the fossa.

Papilloma.—Macleod Yearsley[2] has collected thirty-four cases of benign growths of the tonsil. He concludes: (1,) That true papilloma is uncommon; (2,) That other benign growths are comparatively fre-

quent; (3), That the latter are often of inflammatory origin, and connected with enlarged tonsils.

The treatment of benign growths of the tonsil resolves itself into an efficient tonsillectomy.

Tonsillitis: Operative Treatment.—Excision by cutting instruments in adults is not without a certain risk, viz., secondary hæmorrhage.

Gibb[3] (Philadelphia) writes to advocate the use of the galvano-cautery snare; he uses the instrument invented by Gradle; its disadvantage seems to be the long time required for complete healing to take place—ten days to two weeks.

Follicular Tonsillitis.—The tonsil as a means of entry of pathogenic organisms was referred to in our last issue. There the disease in question was one of tubercular infection; Jessen narrates four cases of pyæmia of varying intensity all due to tonsillitis.

TREATMENT.—Cline[4] has had good results from the local use of **Chromic Acid**, after slitting up the crypts, which can be done with one of the knives, as for instance Browne's, made on purpose.

Kyle[5] recommends a paint composed of 1 part of **Ichthyol** to 2 of water, to be applied twice daily after a preliminary cleansing with an alkaline solution. It may here be remarked incidentally that this advice applies to all local treatment in the throat.

The following mixture is of use in simple angina, or acute follicular tonsillitis[6]:—

℞ Potass. Chlorat.	ʒjss	Syrupus Limonis	ʒj
Potass. Bromid.	ʒss	Syrupus Simp. q.s. ad	ʒiv
Ext. Belladonnæ	gr.iv		

M. Sig.—A teaspoonful thrice daily.

REFERENCES.—[1]"Journ. Laryng.," April, 1898; [2]"Laryngoscope," Aug., 1898; [3]Ibid., July, 1897; [4]"Journ. Laryng.," Dec., 1897; [5]"Med. Rec.," Feb. 5, 1898; [6]Ibid., Dec. 18, 1897.

TRACHEA (Diseases of). *F. de Havilland Hall, M.D., F.R.C.P.*

Tracheal Injections.—It is surprising that this method of medicating the respiratory tract has only comparatively recently attracted much attention. The chief reason for the neglect of a plan of treatment which offers indisputable advantages is the want of familiarity with the use of the laryngoscope on the part of the majority of general practitioners. The increasing acquaintance with laryngoscopic manipulation which has taken place of late years will doubtless lead to a more general use of the tracheal method of treatment.

In this country, Mr. Colin Campbell, by his paper read before the Royal Medical and Chirurgical Society in 1894, brought the subject

prominently before the profession; he recommends the following solutions:—

No. 1.—*Phthisis, Ulceration of Larynx, Asthma:*—

(*a*,) **Benzosol,** 24 grains; **Rectified Spirit,** ½ drachm; mix, and add Price's distilled **Glycerin,** ½ ounce; dissolve by heat.

(*b*,) **Menthol,** 24 grains; **Rectified Spirit,** ½ drachm; **Glycerin** (as above) ½ ounce; dissolve by heat. Mix *a* and *b*, and keep at a temperature of 90° Fahr., or warm before using.

Dose: 2 drachms twice or three times a day.

No. 2.—*Hæmoptysis:*—

Oil of Turpentine, Olive Oil, of each 1 ounce; mix. Inject 4 drachms daily for three days.

No. 3.—*Abscess of Lung, Bronchorrhœa, etc.:*—

Terebene (Cleaver's ordinary), **Olive Oil,** of each 1 ounce; mix. Inject 3 or 4 drachms daily, or use alternately with No. 1.

No. 4.—*Laryngitis, Aphonia:*—

Menthol, 24 grains; **Olive Oil,** ½ ounce; mix. Inject 3 or 4 drachms *slowly* once daily.

No. 5.—*Asthma:*—

Sir T. Grainger Stewart's solution: **Menthol,** 10 parts; **Guaiacol,** 2 parts; **Olive Oil,** 88 parts. Inject 2 or 3 drachms on alternate days with No. 1.

In making the injection, I am accustomed to apply a 20 per cent. solution of cocaine to the soft palate and larynx by means of the laryngeal brush. After waiting two or three minutes I introduce, under guidance of the laryngoscope, the nozzle of the syringe between the vocal cords, and inject the fluid just as the patient takes a deep inspiration. With a little practice on the part of the doctor and patient, the injection can be made without causing cough or pain. In one or two instances I have succeeded in instructing patients to inject themselves.

Convenient syringes are made by Messrs. Down Bros., St. Thomas's Street, London.

R. Lake, F.R.C.S.

Stenosis: Symptoms.—Stridor, clear voice, absence of objective signs of laryngeal obstruction and the characteristic attitude, the head slightly thrown forward with depression of the chin, are the signs we have had to rely on.

Aufrecht[1] has added one to these, viz.: If a stethoscope is placed on the trachea the normal loud bronchial breathing sound is absent, and is replaced either by a short soft one, or is absent altogether. Aufrecht explains this by saying that the narrowing of the tube

lessens the force of the air stream ; this prevents the formation of aërial eddies to which the loud sound is due.

St. Clair Thomson[2] points out that one must not omit the valuable information to be derived from physical examination of the chest. These consist of weakness of breath sounds, loud rhonchi over the course of the trachea, and often tubular breathing over the apices of the lungs.

Foreign Bodies in the lower air passages are of by no means infrequent occurrence. But they usually are either removed in the immediate future, or the patient succumbs. Bunce and Lake[3] have reported a case in which the patient had a piece of mutton bone in the trachea for nine years, the chief symptoms being, bronchitis, pain in the left side, and finally dyspnœa. Recovery followed operation. They report a series of thirty cases in which the body had been present one year or longer.

Gowdecki[4] removed a button by means of an immediate tracheotomy, the foreign body being ejected five days after the operation ; while Meins[5] quotes a case in which a piece of bone caused pulmonary abscess and empyema. The foreign body was ejected two years after its entrance into the air passages.

Kollofrath and Thorner[6] have each removed foreign bodies from the air passages by means of the autoscope ; the former from the bifurcation of the trachea ; this also was a piece of bone.

REFERENCES.—[1] "Centralbl. f. inn. Med.," Jan. 9, 1897 ; [2] "Practitioner," Aug. 1897 ; [3] "Lancet," Sept. 25, 1897 ; [4] "Monats chr. f. Ohrenh.," No. 4, 1898 : [5] "Münch. med. Woch.," July, 1897 ; [6] Ibid., Sept. 21, 1897.

TRACHOMA. (See "Eye-Lids, Diseases of.")

TUBERCULOSIS. *Priestley Leech, M.D., F.R.C.S.*

Dr. Dauriac[1] has tried **Koch's Tuberculin TR.** with marked success in both pulmonary and surgical tuberculosis.

Notes of fourteen successful cases of surgical tuberculosis are given which were rapidly cured by this means. He appears to have obtained better results than have hitherto been obtained by this agent.

REFERENCE.—[1] "Progrès méd.," p. 425 *et seq.*, 1897.

TUBERCULOSIS OF LARYNX. (See "Larynx, Disorders of.")

TUBERCULOSIS OF RECTUM. (See "Rectum, Tuberculosis of.")

TUBERCULOSIS OF THE SKIN. *T. Colcott Fox, M.B.*

Before proceeding to review the chief contributions of the year, we may refer our readers to a masterly article on tuberculosis of the skin, by Iadassohn, in Lubarsch and Ostertag's "Ergebnisse der

Speziellen pathologischen Morphologie und Physiologie der Sinnesorgane."

Dr. James C. Johnston, of New York, in a paper on the *Cutaneous Tuberculoses in Childhood*, read before the Pediatric section of the American Medical Association, presented the following classification :—

I.—Tuberculoses: (*a*,) Lupus vulgaris; (*b*,) Scrofuloderma; (*c*,) Tuberculosis verrucosa; (*d*,) Tuberculosis vera; (*e*,) Miliary tuberculosis of Leichtenstein.

II.—Paratuberculoses: (*a*,) The scrofulides of Duhring; (*b*,) The tuberculides of Darier; (*c*,) Certain hyper-pigmentations common to tuberculosis, syphilis, cancer, paludism, alcohol, diabetes, etc.

The *Tuberculoses* are due to the presence of the tubercle bacillus, and their varieties depend on the site affected, the layer of the skin involved, the mode of infection, the virulence of the poison, the predisposition of the soil, etc. The term *scrofuloderma* is restricted to the tuberculous lesions which develop in the subcutaneous tissue. Johnston says they are usually secondary to glandular or osseous lesions, except in the case of the scrofulo-tuberculous gummata of children, but this is not always so. The peculiar phase known as t. verrucosa, of which some *post-mortem* traits are examples, are now well recognised. The "true tuberculous ulcer," occurring as a secondary infection in phthisics, is rare.

In Leichtenstein's remarkable case, crops of acneform lesions developed in a phthisic, and the eruption appears indistinguishable from Darier's tuberculides, except that tuberculous tissue and bacilli were demonstrated. Sack regards warty tuberculosis as rather a variety of lupus. The special clinical and histological features are explained by the characters of the tissues (hand and forearm) where this variety is usually found.

Paratuberculoses do not appear to be directly due to the presence of the tubercle bacillus in the lesions, though they occur in persons who suffer, or are supposed to suffer, from other manifestations of tuberculosis. Various theories have been suggested to account for them, such as the circulation of toxins. The name was suggested to Johnston by Fournier's well-known term applied to affections developing and flourishing upon a syphilitic basis, but not necessarily syphilitic in themselves. This group is at present not firmly constituted, and is only provisional, and the eruptions here included are described under various names in different countries.

Duhring's Scrofulides are said to be pyodermic affections, which, if toxinic in origin, are so probably in the sense that pus organisms are

more easily inoculated upon a skin weakened in resisting power by circulating poisons.

Darier's Tuberculides include lichen scrofulosorum and some grouped folliculites, possibly erythema induratum scrofulosorum or Bazin's disease, lupus pernio, and the various acneform eruptions described as acne cachecticorum (Hebra), hydradenites, folliclis, acnitis, acne scrofulosorum of English writers, etc. Du Castel, and Balzer and Lewy[1] have lately described cases belonging to this category.

At the twelfth International Congress of Medicine, held at Moscow, a discussion turned chiefly on the clinical forms which should be considered *primitive* tuberculoses of the skin. Schwimmer admitted (1,) the tuberculous ulcer; (2,) lupus; (3,) scrofuloderma; and (4,) warty tuberculosis. Kaposi, on the contrary, admitted only the first, which was a true miliary tuberculosis of the skin, characterised by extremely fine isolated granulations aggregated into a patch generally on the lower half of the face, but which might occur elsewhere and even invade the mucous membranes. Usually the granulations unite to form extremely painful ulcerations with ragged borders and a pale-red exuding floor. The course is rapid and it coincides with visceral tuberculosis. This affection is absolutely comparable clinically, histologically and bacteriologically to the visceral miliary tuberculosis. Unna admitted lupus as the type of primitive tuberculosis of the skin. The true tuberculous ulcer described by Kaposi was too rare to be the only form.

Treatment of Lupus Vulgaris.—The year has been marked by considerable activity in the attempts to reach a completely satisfactory treatment. Some of the methods devised, even if not destined to prove of great practical value, are of a highly interesting character.

Treatment by T. R. Tuberculin.—The expense of this method, owing to the high price of the drug and the long duration of the treatment, has prevented anything like such a widespread testing as with the old tuberculin. The further reports to hand seem to confirm the conclusion that tuberculin R. offers no real advantages beyond those of the old tuberculin, while it has all the disadvantages which the other preparation possessed. Waelsch[2] and Allan Jamieson[3] have recorded beneficial results. Scheuber,[4] Stopford Taylor[5] and G. A. Heron[6] succeeded in definitely curing a case of lupus.

Serum Therapy.—Fileti and La Mensa[7] tried **Maragliano's Anti-Tubercular Serum** in ten cases of lupus and scrofuloderma, both locally and by subcutaneous injection. A lupus of the hand in a child was cured in forty-six days by six injections. In none of the other cases did any good appear to result.

Treatment by Excision.—We referred last year to the brilliant results obtained by Lang, of Vienna. His experience is set forth in a special monograph.[8] His technique varies but little from that adopted in England. When, however, dressing the wound after grafting, instead of using oiled silk or protective as an application directly to the wound, and covering this with antiseptic gauze, Lang applies an aseptic dressing without any such intermediary.

William Anderson,[9] who has had a large experience in the treatment of lupus, has lately reviewed the subject, and, after an experience of *excision* during the past fifteen years, gives it as his opinion that, if carried out in the light of modern science in suitable cases, it should be not a final resort, but both the alpha and the omega of the surgeon. For patches not exceeding a crown piece in size he has found excision by far the most successful, the most speedy, the most thorough, and in its results the most permanent and sightly of all plans. The wound may be treated in three different ways, according to circumstances. If small and conveniently situated, it may be closed immediately by suture, leaving a linear cicatrix; if large, or otherwise unsuitable for closure, it may be covered either immediately or after a short interval with an epidermic graft, and the healing process in any case is concluded within a period of two or three weeks. On the neck, limbs, and trunk, and occasionally on the face, the raw surface may be covered in partially or completely by gliding portions of detached integument from an adjacent part, or other resources of plastic surgery may be employed, but this is not often necessary. Recurrence *in situ* is exceptional. The author has excised patches covering nearly the whole of the cheek, and sometimes extending to the submaxillary region, and even the lower portion of the opposite cheek, completing the operation at a single sitting. Where such extensive operations are undesirable, he has adopted a plan of excising the growing borders of the disease, vigorously curetting the rest, covering the whole with salicylic ointment (20 to 30 grains to the 1 ounce of vaseline) until cicatrisation is well started, and then using epidermic grafts, if necessary, though it is not often the case. Anderson has removed at a single sitting as many as thirty-five different patches, of sizes ranging between a threepenny piece and that of a crown.

The line of incision is placed (where possible) a third to a half of an inch from the most rapidly spreading edge, but may approach to within a quarter of an inch of the more quiescent parts of the border. On the trunk or limbs the section may be carried down to the deep fascia if the subcutaneous tissue is scanty, or well into a thick layer

of fat. On the face the muscles and branches of the facial nerve must be left unexposed, and the depth within these limits must be adjusted to the degree of infiltration of the tissues by the new growth, taking care to remove the whole of the disease and a certain portion of the apparently healthy structure beneath.

Buschke,[10] of Neisser's Clinic in Breslau, also strongly advocates this method. He gives an injection of Koch's old tuberculin before operating, in order to mark out exactly by the local reaction the limits of the lupus infection. Every one recognises the difficulty where the mucous membranes are involved.

Robert Jones[11] is another strong advocate of this method, and suggests a more extensive trial of the practice of transplantation of partially detached skin flaps after excision. He records three illustrative cases, and makes the following suggestions: (1,) Dissect very deeply, so as to remove every element of disease; (2,) Carefully stop all bleeding; (3,) Stitch the flap accurately to the edges of the wound; (4,) See that the length of the flap does not exceed twice the breadth of the base; (5,) Carefully place the patient so that no tension falls on the flap.

Treatment by Excision with a Curette; an improvement of Volkmann's method.—Balmanno Squire advocates the following method. As he objects to the administration of chloroform or ether in operating on lupus, he uses local anæsthesia by freezing the affected area by means of Richardson's apparatus. A glacial state of the skin is indispensable. It is necessary to mark out before the freezing the exact limits of the patch to be operated on. He then "sculps" the skin with a modification of Volkmann's steel spoons, *i.e.*, one-fourth the size and with much sharper edges. In the glacial state, not only the soft and friable diseased tissue comes away, but such tougher portions of skin as are in a less degree affected by lupus.

As a further safeguard against return, Squire carries out a linear scarification of the floor and margin of the diseased area at a subsequent sitting. The multiple linear scarifier is composed of sixteen parallel scalpel blades fixed on one handle, the cutting edge of each blade being separated from that of its neighbour by an interval of only a thirty-second of an inch.

Röntgen Rays.—A number of experimenters have reported the results of the application of the Röntgen rays in lupus. Thus, Gocht[12] records the treatment of six cases of lupus. A severe local reaction was followed in some of these cases by an apparent cure, and others were greatly benefited. Schönberg[13] relates two cases, and refers to Kümmell's results. Schiff[14] has also had two cases,

and Sinapius[15] one. For the details of the method we refer our readers to the respective papers. The results appear to have been remarkably good, but it remains to be seen whether the rays actually kill the tubercle bacillus, or put the tissues in a better position to resist the organism, or simply act by setting up inflammation and suppuration, and so cicatrisation. Thurstan Holland[16] also exhibited a successful case.

Phototherapy, or Treatment by Concentrated Light.—Finsen, of Copenhagen, who is known for his researches on the action of light, and a practical application in the red-light treatment of variola, has utilised light rays for the treatment of certain otherwise intractable cases of lupus vulgaris. He has now experimented on over one hundred cases, and has met with a large amount of success. The drawback is in the length of the treatment. Pictures of the apparatus are given in the "Semaine médicale," No. 59, 1897.

Bang[17] gives us the latest information, from which it appears that the apparatus is gradually being perfected so as to more highly concentrate the light and exclude heat rays. There is no immediate redness or pain produced, but in six to ten hours a moderate dermatitis ensues over the lupic area. We quote the following note from the "British Journal of Dermatology": "The problem was to make an instrument which concentrated the violet and ultra-violet rays and and at the same time excluded the yellow, red, and ultra-red rays. Two sources of light could be used—the sun and the voltaic arc.

"The instrument used for the sun's rays is the more simple. It consists of a plano-convex hollow lens, the convex portion being like a large watchglass 30 to 40 centimètres in diameter. The hollow space between the convex and plane portions contains an ammoniacal solution of copper sulphate, which allows the blue and violet rays to pass and excludes most of the heat rays. The violet rays are focused at a point about 50 centimètres distant. The patient is not placed exactly at the focus, but somewhat closer to the lens, so as to avoid the small amount of heat which might prove disagreeable. The nurses find no difficulty in adjusting the apparatus to the varying positions of the sun. If the sunlight be very powerful, the solution must be made darker by the addition of a few drops of a concentrated solution of copper.

"The apparatus in the case of the arc light is totally different. The electric rays being divergent, they must in the first place be rendered parallel by means of two plano-convex glass lenses, placed one behind the other, with the plane surfaces towards an arc light of 50 to 80 ampères. Beyond these lenses there is a space of 20 to 30

centimètres in length, limited by two more plano-convex lenses, the plane surfaces facing each other. This space contains distilled water. Beyond this, again, there is a smaller space enclosed by two plane pieces of glass and containing a blue solution. Since rock crystal lenses have been substituted for glass ones, the blue solution has been dispersed with, as it was found the latter, as well as the glass lenses, absorbed ultra-violet rays. In place of the blue solution, the caloric rays are dealt with by exerting the required pressure over the diseased areas by means of a double rock-crystal case through which cold water is allowed to stream." The latter remark refers to the necessity for passing the light into a skin which has had as much blood as possible squeezed out of it.

Treatment with Currents of Hot Air (Aërothermotherapy).—Holländer, of Berlin, has experimented with a special method of treatment by currents of hot air, and finds it of real service. The object is to cause a slow and progressive mortification of the lupus patch, without permitting any direct contact between the source of the heat and the lesion. The apparatus is simple and easily handled. In cases of extensive lupus patches, where there is no healthy skin, and in regions where cicatricial retraction is not to be feared, *absolute cauterisation* is employed. On the head or face, where ugly cicatrices are to be avoided, *relative cicatrisation* is called for. Healthy skin whitens and shrivels by the vaso-motor constriction produced, but in a few days regains its normal appearance. On the other hand, the lupus patch swells, and presently begins to mortify.[11] Lang,[12] of Vienna, has also used this method. A tube, from which the hot air comes, is held at less than half an inch from the surface of the skin, which can support without much pain air heated to 200°-300° C. A yellowish-white eschar is at once produced, the effect spreading laterally as well as into the depths of the tissue. When the eschar comes away there forms a healthy cicatrix, or, if some spots of lupus remain, the treatment may be repeated. Lang recommends it for lupus erythematosus. It is not easy to see what advantage this proceeding promises over other destructive methods.

REFERENCES.—[1] "Ann. de derm. et de syph.," June, 1898; [2] "Arch. f. Derm. u. Syph.," Band xliv, May, 1898; [3] Med. Chir. Soc., Edin., Nov. 3, 1897; [4] "Arch. f. Derm. u. Syph.," vol. xlii, parts 2 and 3; [5] "Brit. Med. Journ.," July 9, 1898; [6] Ibid; [7] "Giorn. Mal. d. Nal. Ven. del Pelle," Fasc. I., 1897, p. 89; [8] "Lupus and its Operative Treatment," Josef Sáfár, Vienna; [9] "St. Thomas's Hosp. Reports," vol. xxv, 1897; [10] "Ann. de derm. et de syph.," May, 1898; [11] "Treatment," Mar. 24, 1898; [12] "Fortschr. auf. dem. Gebiete der Röntgen's trahlem," Band i, Heft 1; [13] "Arch. d'électricité médicale, exper. et clin.," Jan., 1898;

[14] "Arch. f. Derm. u. Syph.," Bd. xl, Hft. 2 and 3; [15] Die Heilung der Tuberculose durch Röntgenbestrahlung," 1898: [16] "Liverpool Med. Instit.," Oct. 20, 1898; [17] "La Presse médicale," No. 65, Aug., 1898, p. 65, and "Monatsh. f. prakt. Derm.," Bd. xxvii, No. 1, July, 1898, p. 1, epitomised by Pernet in "Brit. Journ. Dermat.," Oct., 1898; [18] "Presse médicale," Oct. 30, 1897; [19] "Imperio-Royal Soc. Phys.," May 6, 1898.

TYPHOID FEVER. *W. Gilman Thompson, M.D., New York.*

Prof. Quiérolo,[1] of Pisa, feeds his typhoid patients exclusively by rectal enemata, in order, he says, to give rest to the ulcerated bowel. The **Nutrient Enemata,** given four times a day, consist of triturated meat and pancreas with a few drops of laudanum, each injection being preceded by washing the rectum with boric acid solution, after Leube's original method. By this means the author cited believes he prevents much auto-toxic action from the bowel. Many severe cases recovered upon this treatment.

James Tyson[2] furnishes an elaborate study of urea estimations under the Brand bathing system, showing considerable increase in its quantity. He concludes by the following reference to cold tub baths: "At present, my confidence in the hydriatic treatment is such that I would not feel comfortable to treat a case in any other way, unless such treatment was insisted upon by the patient."

Meningitis, which is really a rare complication of typhoid fever, despite the frequent diagnosis of cerebral symptoms as such, is discussed by Kuehnan[3] who reports a case in which he found the typhoid bacilli at the base of the brain in purulent meningeal exudate.

Ghadially,[4] of India, describes a new microbe which is capable of destroying the bacillus entericus in water and milk, as well as the bacillus coli. He swallowed quantities of this microbe himself without detriment, and he believes that it can be used on a large scale to disinfect water contaminated with typhoid germs.

Germano[5] has made elaborate experiments in regard to the aërial transmission of typhoid fever germs, proving again what has long been established, that the infection is practically never transmitted in this manner unless, indeed, flies are to be regarded as aërial transmitters. That this latter mode of infection is a very common and simple one has been indisputably brought out by the scandalously bad hygiene which characterised many American home army camps immediately after the late Spanish war. A host of articles have been written within the past few months (before Oct., 1898) in proof of this fact, and in such camps fly infection has been much more disastrous

than water infection. The diptera alight upon typhoid excreta in imperfectly disinfected camp "sinks" and convey the bacilli upon their feet, probosces, etc., to the first dish or article of food they alight upon.

The diazo reaction or Ehrlich's test, as observed in typhoid fever, is discussed by Green,[6] but the reaction is obtainable in so many other diseases, such as septicæmia, acute tuberculosis, etc., that it is of little value as a diagnostic test. It is, however, quite uniformly present in enteric fever. Leonard Gamgee[7] reviews the "present position of the operative treatment of peritonitis during typhoid fever," and refers to twenty-one operated cases with five recoveries. He believes that, as operation holds out the only prospect of recovery, it had better be undertaken when the diagnosis can be well substantiated in time, which is unfortunately not always easy to do.

Osler,[8] speaking of relapses of typhoid fever, says that out of five hundred cases in his service, forty relapsed. There may be double, rarely triple, and very rarely four or five relapses. In one of his cases, the disease and two relapses occupied nearly six months. He believes the Brand treatment has no concern in causing relapse.

The literature of the year is, as usual, filled with accounts of drug remedies for enteric fever, and **Iodine, Guaiacol,** and **Carbolic Acid** again figure in this *rôle*, but the cases reported favourably are few in number, and the reporters seem to forget that fully 80 per cent. of cases recover nowadays, no matter what treatment is employed, and mild cases are observed in every epidemic, and in some epidemics so frequently as to lead to erroneous conclusions as to "cure-alls."

W. Gilman Thompson[9] summarises the results of **Cold Tub-bathing** in several hundred cases as follows :—

(1,) Cold tub-bathing does not ordinarily shorten the duration of enteric fever.

(2,) It does not prevent the occurrence of at least as many relapses as may take place without it.

(3,) It does not prevent the occurrence of many of the ordinary complications of the disease, most of which, however, are much less severe than those that are often present without it.

(4,) It does not in any manner preclude the simultaneous use of the intestinal antiseptic or any other recognised method of treatment.

(5,) It may be safely employed in all cases excepting those actually having intestinal hæmorrhage or severe pneumonia at the time, not even early pregnancy or intercurrent menstruation being contra-indications for its use.

(6,) It is a rational plan of treatment directed towards the support

of the nervous system by the double stimulus of cutaneous friction and shock of sudden cold, and as such it is particularly useful in preventing those symptoms which result from the overwhelming of the nervous system by the toxin of the disease. Furthermore, it so regulates the metabolic processes of the body as to increase its resistance to the inroads of fever, and less alcoholic stimulation is required than is often given in other methods of the treatment.

(7,) When the patients come under the tubbing treatment within the first week of illness, it offers the almost certain prospect of the disease running a mild course, free from the graver complications common under expectant and other treatment, and it reduces the mortality of many of the severer cases by approximately one-half.

The same writer [10] reports a number of interesting unusual complications of enteric fever, including a thyroid abscess, purpura hæmorrhagica, diffuse eczema, acute cardiac dilatation, etc.

Henry Duchenne [11] reports thirty-five cases (with two deaths) treated by what he terms "internal bathing," *i.e.*, the patient is obliged to drink copiously of inert liquids and receive a daily lukewarm enema of from one to two pints of warm water.

J. Murray-Gibbes,[12] in the "Australasian Medical Gazette," proposes a treatment by **Cold Air.** The patient is to lie upon a tube mattress, covered by another, through which a cooling mixture is made to flow, thereby refrigerating the air between them. He thinks that in this manner nervous shock is to be avoided as well as all disturbance in handling, such as that necessary in the cold tubbing treatment.

Simon Baruch,[13] of New York, reports "some desperate cases of typhoid fever treated with and without cold baths." He is a well-known advocate of the Brand tubbing system.

The year's literature of enteric fever comprises upwards of one hundred articles upon the **Serum Diagnosis** by means of the Widal reaction.[14] At the meeting of the American Medical Association[15] in June, 1898, important papers on this topic were read by W. M. Welch, Wyatt Johnson, J. H. Musser, and others, and a committee was appointed to make a collective report. They found that among over four thousand cases the test proved positive and satisfactory in above 95 per cent. Welch concludes his paper as follows: (1,) Experience has demonstrated that the method of serum diagnosis of typhoid fever is of great practical value; (2,) The alteration of the blood on which this method is based is a specific effect of infection or intoxication with the typhoid bacillus; (3,) The microscopical serum test is to be preferred to the macroscopical methods; (4,) Quantitative determinations, relating especially to the culture, the time limits, and

the dilution of the serum, are of importance, and, at least in doubtful cases, should not be neglected ; (5,) As the reaction may be delayed or occasionally absent, a negative result of the test does not exclude the diagnosis of typhoid fever. The later in the course of the disease the test is applied, and the oftener the examinations are repeated at intervals, the less is the probability of the existence of typhoid fever, if the reaction is not manifest ; (6,) The persistence of the reaction, sometimes for years after recovery from typhoid fever, is to be borne in mind in interpreting a reaction in febrile conditions. The appearance of the reaction and its increase during the period of observation speak for fresh typhoid infection ; (7,) The danger of mistakes from positive reactions in non-typhoid cases can be guarded against in nearly all instances ; (8,) Provision should be made, especially by the establishment and support of Municipal or State laboratories, to render generally available to practitioners the serum method of diagnosis, as well as other bacteriological procedures of similar practical value.

An interesting case of the serum reaction is reported by H. Batty Shaw,[16] who discovered it in the blood of an infant whose mother had enteric fever during gestation.

E. Bates Block [17] writes of the technique in serum diagnosis from experience at the Johns Hopkins Hospital, and A. S. Grünbaum [18] furnishes "practical and theoretical points in serum diagnosis."

W. C. Alpers [19] and Benjamin L. Murray have applied the Widal test to suspected water at Albany with favourable result. Wyatt Johnson [20] contributes an elaborate research upon the same subject.

W. Gilman Thompson,[21] of New York, discussed the clinical value of the Widal test before the British Medical Association in September, 1897, and the same clinician presents an exhaustive paper[22] upon cold tub-bathing in enteric fever. F. E. Hare [23] reports ten years' experience with the latter method in the Brisbane Hospital with a mortality of approximately 7·5 per cent. among one thousand nine hundred and two cases.

Dietetic treatment of enteric fever is discussed by Frederick Shattuck,[24] who allows more latitude than is customary, and suggests the following foods : (1,) Milk, hot or cold, with or without salt, diluted with lime-water, soda-water, Apolinaris water, Vichy ; peptonised milk, cream and water, milk with white of egg, flip, butter-milk, koumiss, whey, milk with tea, coffee, and cocoa ; (2,) Soups : beef, veal, chicken, tomato, potato, oyster, mutton, pea, bean, squash ; carefully strained, and thickened with rice (powdered), arrowroot, flour, milk or cream, egg, barley ; (3,) Horlick's food,

Mellin's food, malted milk, carnopeptone, bovinine, somatose; (4,) Beef-juice; (5,) Gruels: strained cornmeal, crackers, flour, barley-water, toast-water, albumin-water with lemon juice; (6,) Ice-cream; (7,) Eggs, soft boiled or raw, egg-nog; (8,) Finely minced lean meat, scraped beef; the soft part of raw oysters, soft crackers with milk or broth; soft puddings without raisins; soft toast without crust; blanc-mange, wine-jelly, apple-sauce, and macaroni.

The history of typhoid fever in Munich is set forth by Christopher Childs [25] in an elaborate statistical research accompanied by tables and charts.

W. H. Park,[26] of New York, gives an account of the Hiss method of differentiation between typhoid and colon bacilli in the fæces.

Prophylaxis of typhoid fever formed the subject of a recent debate (December 14, 1897) of the Royal Medical and Chirurgical Society,[27] as it did three years ago at the New York State Medical Society. The *de novo* origin of the disease was disposed of by J. F. Payne.

H. A. Hare [28] presents an elaborate research into "the real value of the Brand bath in typhoid fever." He is disposed to decry its advantages, but the force of his argument is somewhat impaired by the statement in his article that "he has rarely, if ever, used the bath." It is a curious fact that so much argument is expended against the method by those who have never given it a fair trial, in opposition to the experience of the many who have used it in four or five hundred cases or more, and who have submitted to the treatment themselves.

Eugene Hodenpyl,[29] of New York, reports a case of enteric fever "without characteristic lesions of the small intestine."

J. Michell Clarke,[30] of Bristol, writes a valuable paper upon the treatment in general of enteric fever.

Perhaps the most valuable work of the year upon typhoid fever is that of the Croonian lectures on "Chemical products of pathogenic bacteria, considered with special reference to enteric fever" by Sidney Martin.[31]

Mark W. Richardson,[32] of Boston, describes the Elsner and Capaldi methods of diagnosis of typhoid fever, based upon modes of growth of the bacilli obtained from the stools. The serum test is so much easier that unless the examination of the stools can be made to demonstrate the bacilli earlier in the disease, it is not likely to be of more than general bacteriological interest.

William Ewart [33] writes of the dietetic treatment of typhoid fever, and while admitting that the purely milk diet often causes starvation

and emaciation, deprecates the use of other food than yolk of egg, chicken or calf's foot jelly, maltine, etc., during the fever.

A. G. Barrs[34] advocates the highly dangerous practice of allowing typhoid fever patients solid food, meat, etc., while they crave it, even during the acute stage, when this stage is not too severe, a view which will scarcely be endorsed by those familiar with such cases as occur outside of England, where the disease is often mild. Such treatment may be safe in the hands of so good a clinician as Dr. Barrs, but it is a pernicious method to promulgate, as proved by innumerable cases under the observation of others.

REFERENCES.—[1] "Lancet," Aug. 7, 1897 ; [2] "Amer. Journ. Med. Sci.," Sept., 1897 ; [3] "Med. Rec.," Aug. 14, 1897 ; [4] "Brit. Med. Journ.," Aug. 14, 1897 ; [5] "Presse méd.," July 28, 1897 ; [6] "So. California Pract,," March, 1897 ; [7] "Birmingham Med. Rev.," June, 1897 ; [8] "Med. Rec.," July 3, 1897 ; [9] "Internat. Clin.," vol. iv., series vi., p. 11, 1897 ; [10] "Presbyter. Hosp. Reports," New York, 1897 ; [11] "Amer. Journ. Med. Sci.," July, 1897 ; [12] "New York Med. Journ.," June 19, 1897 ; [13] "New York Med. Rec.," p. 469, Oct. 1, 1898 ; [14] "Brit. Med. Journ.," Dec. 18, 1897 ; [15] "Trans. Amer. Med. Assoc.," 1898 ; [16] "Lancet," Aug. 28, 1897 ; [17] "Brit. Med. Journ.," Dec. 18, 1897 ; [18] Ibid., Dec. 25, 1897 ; [19] "Amer. Med. and Surg. Bull.," June 10, 1897 ; [20] "New York Med. Journ.," June 5, 1897 ; [21] "Brit. Med. Journ.," Dec. 18, 1897 ; [22] "Presbyter. Hosp. Reports," New York, 1897 ; [23] "Aust. Med. Gaz.," No. 186, p. 111, 1897 ; [24] "Journ. Amer. Med. Assoc.," July 10, 1897 ; [25] "Lancet," Feb. 5, 1898 ; [26] "Brit. Med. Journ.," Dec. 18, 1898 ; [27] "Med. Press and Circ.," Dec. 22, 1897 ; [28] "Therap. Gaz.," March 15, 1898 ; [29] "Brit. Med. Journ.," Dec. 28, 1897 ; [30] "Bristol Med. Chir. Journ.," March 1898 ; [31] "Brit. Med. Journ.," June 18, 25, July 2, 9, 1898 ; [32] Ibid., Dec. 25, 1897 ; [33] Ibid., May 8, 1897 ; [34] Ibid., Jan. 16, 1897.

TYPHOID FEVER (Skin Affections occurring in).

T. Colcott Fox, M.B.

A leading article in the "Journal of the American Medical Association" (July 9, 1898) deals with this subject, and may be useful as an illustration of the various eruptions which may present themselves in the course of an infectious fever.

The following is the list given :—

(1,) The specific rash.

(2,) Tâche cérébrale.

(3,) Sweat rashes, such as sudamina, and morbilliform eruptions following bathing, the administration of coal tar, antipyretics, etc.

(4,) Drug eruptions of various types, scarlatiniform, morbilliform, etc.

(5,) The steel-gray or pale-blue spots of abdomen, chest and thighs, due to pediculi (Tâches bleuâtres).

(6,) Urticaria, and herpes and eczema.

(7,) Œdema from a variety of complications—as thrombosis, or nephritis.

(8,) Complications, such as erysipelas, gangrene from pressure bedsore or noma.

(9,) Results of malnutrition—as alopecia, atrophic conditions of the nails, and linear atrophy.

(10,) The writer includes purpura, but makes no mention of the very interesting class of erythemata. This may include fugitive, irregular hyperæmic patches, or any of the types of exanthematic erythemata, scarlatiniform, morbilliform, roseola, erythema multiforme, due to the poisons of streptococci, staphylococci, pneumococci, etc.

URETHRA. (See also "Gonorrhœa.") *E. Hurry Fenwick, F.R.C.S.*

The Sterilisation of Urethral Instruments.—Edward Martin and Francis D. Patterson published papers on this subject in the "Philadelphia Polyclinic" (Feb., 1898). The investigation referred more particularly to soft instruments which do not admit of sterilisation by boiling. Further, it attempted to determine how an instrument rendered sterile can be introduced through the urethra into the bladder without becoming infected and carrying this infection with it, and to devise a simple technique by means of which not only can the surgeon practise sterile catheterisation, but the intelligent patient can also perform this operation in a perfectly clean manner.

Trial was made with various antiseptic soaps, but in no instance could sterilisation be accomplished. Alcohol and carbolic acid both proved useless, and, moreover, destroyed the surface of the instrument in a short time.

Mercuric Chloride, 1 in 1000, proved entirely efficient when it was applied to a catheter which had been washed in soap and water immediately after having been infected with putrid urine. Old catheters, the inequalities of which are filled with dried albuminous substances, can be disinfected only by prolonged soaking.

Wrapping the instruments in cloth, into the meshes of which metallic mercury has been rubbed, and enclosing the bundle thus formed in a tight box, was found to be unreliable. The cultures from the interior of infected catheters thus treated for twenty-four hours, always proved positive.

Exposure of the catheters to formaldehyde vapours, engendered by an alcohol lamp, was difficult of accomplishment and unsuccessful in

its results. Exposure of the instruments to a formaldehyde vapour given off by **Paraform**, in a closed box at ordinary room temperature, proved absolutely efficacious. By this means, not only were new catheters which are always infected, and old catheters which had been dipped in putrid urine and thoroughly washed, disinfected, but also those which had been dipped in infected material, either urine or pure cultures of staphylococcus pyogenes or the colon bacillus, and had not been washed, were rendered absolutely sterile. This was proved by upwards of a hundred experiments.

In corroboration of Janet and Guyon's experiments, it was found that for catheters of ordinary size, *i.e.*, 12 to 20 F., exposure to paraform vapour for twenty-four hours was necessary before sterilisation was accomplished. For catheters of very fine calibre, such as the ureteral catheters, and for the lumina of the irrigating cystoscope, an exposure of more than twice this length was not thoroughly efficacious. In these fine instruments, however, a few seconds' spraying with the Fuis formaldehyde tube produced thorough and lasting disinfection even though the catheters had not been washed after infection.

As to the method of application, all that is required is a box of wood, metal, or any comparatively air-tight material in which the catheters can be laid, with a tray or cage, provided with a fabric, on which the paraform can be spread so that the vaporisation may be fairly rapid. In the experiments, half a drachm of paraform was used, and this still preserved its disinfecting properties at the end of two weeks. With a view to sterilising, as far as possible, the urethral mucous membrane, irrigations with 1 in 6000 solution of **Silver Nitrate** were employed, and found to diminish, but rarely to destroy infectivity and to diminish the chances of organisms being carried into the bladder.

Method of rendering the Posterior Urethra Insensitive.—Scharff[1] reports that it has for long been known that a rectal suppository of morphia will deaden the sensitiveness of the urethra to instrumentation. Instead of using suppositories, Scharff employs the various drugs in solution, and finds that fifteen minutes after a rectal injection has been given the posterior urethra is insensitive. For instance, in acute urethro-cystitis, with imperious calls for micturition and blood at the end of the act, he injects into the rectum 2·5 to 5·0 grammes:—

℞	Morphiæ Muriat.	0·3	Aq. Dest.	100·0
	Atropiæ Sulph.	0·01		

Or the same quantity of:—

℞	Ext. Opii	1·5	Aq. Dest.	100·0
	Ext. Bellad.	0·5		

In order to produce an anti-febrile, as well as an analgesic effect, Scharff employs :—

℞ Antipyrine		Cocainæ Mur.	1·00
Sodii Salicyl.	āā 10·0	Aq. Dest.	100·0

For cases in which instrumentation is painful, and cocaine per urethram is not sufficient, Scharff injects into the deep urethra a gramme of the following solution, after he has thrown 1 gramme of antipyrine, dissolved in a 1 per cent. solution of cocaine, into the rectum :—

℞ Antipyrine	10·0	Aq. Dest.	100.0
Cocainæ Mur.	5·0		

He also draws attention to the value of the faradic current in reducing the pain of the introduction of instruments along the deep urethra.

Resilient Stricture of the Urethra and its Treatment.—Dr. C. W. MacGillivray,[2] of Edinburgh, writes a suggestive article on this subject. He compares a resilient stricture to an indiarubber ring. One knows how easily such a ring can be dilated up to any size short of rupture, and how at once, on the removal of the dilating instrument, it returns to its original dimensions ; by analogy, therefore, gradual dilatation is evidently inapplicable to the treatment of resilient stricture, but, on the other hand, if by any means one can divide such a ring it at once ceases to act. So long, therefore, as it remains whole it will contract concentrically ; but divide it, and any contractile power it possesses will rather tend to draw the cut ends apart, and so long as it remains severed it can never act as a constricting agent.

Two methods suggest themselves for the division of a resilient stricture, viz., rupture by Holt's method, and internal urethrotomy. Holting may be discarded on account of the severity and uncertainty of the traumatism inflicted.

If one attempts to divide an india-rubber ring with a sharp knife, it is surprising how difficult it is to accomplish the division so long as the ring remains unstretched ; put it on the stretch, however, and a mere touch with a sharp edge will cause it to fly asunder. It is evident, therefore, that in order to perform internal urethrotomy satisfactorily, stretching the stricture is an indispensable preliminary ; any instrument with merely a small concealed knife will not be sufficient.

With this end in view, Dr. MacGillivray has devised an instrument which shall keep the urethra stretched in the neighbourhood of the stricture during its division. The instrument is essentially a com-

bination of the Maissoneuve and Otis urethrotomes, and is made by Gardner, of Edinburgh. The author has used this instrument in a large number of suitable cases, and has met with uniformly satisfactory results.

REFERENCES.—[1] "Centralb. für die Krankh. der Harn und Sexualorgane," No. 1, 1897; [2] "Lancet," July 17, 1897.

URINE. *Prof. R Saundby, M.D., F.R.C.P.*

As the result of the bacteriological examination of fifty-two cases, Max Melchior[1], of Copenhagen, arrives at the following conclusions respecting the septic infection of the urinary tract :—

(1,) Bacterium coli is the most frequent cause of "bacteriuria," and always produces acid urine.

(2,) Besides being produced by bacterium coli, "bacteriuria" may, for example, be caused by urea-decomposing microbes, which may even show acid urine.

(3,) The "bacteriuria" may be renal or vesical; in the latter case the prostate sometimes plays an important part as the focus of the infectious substance.

(4,) Bacterium coli is the microbe most frequently found in cystitis, pyelitis, and suppurative pyelo-nephritis.

(5,) In a large proportion of cases, cystitis is combined with acid urine.

(6,) Even urea-decomposing microbes may produce cystitis with acid urine.

(7,) In women, spontaneous coli-cystitis arising from urethral auto-infection is not seldom found.

(8,) In cystitis, bacterium coli may be superseded by other urine-decomposing species.

(9,) Bacterium coli may produce apparently spontaneous cystitis and pyelitis arising from hæmatogenous infection from the alimentary tract.

(10,) Pyelitis produced by bacterium coli is not seldom complicated with descending secondary cystitis.

(11,) Urea-decomposing microbes may sometimes produce pyelo-nephritis without any complication of cystitis, and with acid urine.

REFERENCE.—[1] "Brit. Med. Journ.," vol. ii., p. 1310, 1898.

UTERUS (Disorders of). *Arthur E. Giles, M.D., B.Sc., F.R.C.S.*

Displacements: Symptoms and Etiology.—While some authorities are inclined to attribute the symptoms accompanying uterine displacements to the uterine condition itself, others regard this as relatively unimportant, and assign the various disturbances met with to concomitant path-

ological conditions. Thus Winter[1] examined three hundred women from two to ten months after delivery, and found the uterus retrodisplaced in thirty-six, or 12 per cent. Eleven had no symptoms, while in the remaining twenty-five the symptoms were due to complications other than the displacement in all but four. Ninety others under treatment for retroversion were carefully observed with the view of determining how far their symptoms were due to this condition alone, with the result that in eighty-four other complications existed (pregnancy, menorrhagia, prolapsus, disease of the adnexa and perimetric tissues) which were the real cause of their sufferings.

Hammond[2] goes so far as to maintain that no displacement of the uterus is pathological, with the single exception of prolapse. He considers that all the influences leading to backward positions are physiological, and believes that the most probable cause of retroversion lies in a short posterior wall, acting in conjunction with the utero-sacral and vesical ligaments. That congenital variations, such as altered length of anterior (Harrison[3]) or posterior vaginal wall, or abnormal modes of attachment of the pelvic fascia (Mackenrodt[4]) may lead to deviations, will be readily admitted : we should, however, join issue with the author if he regards a condition as physiological because it is congenital. That the view is widely held that displacement *per se* may cause symptoms, is evidenced by the activity shown during the last twelve months in the direction of fresh operative procedures. Some of these we may now notice.

Treatment of Displacements.—Howard Kelly collected a list of forty-five different operations devised for the cure of retroversion. This shows the unsettled feeling in the profession as to the best method.

Riddle Goffe[5] advocates a plan of shortening the round ligaments through the vagina. He proceeds as follows : The patient is placed in the lithotomy position, and a transverse incision made in front of the cervix. The bladder is stripped from the uterus. The anterior vaginal wall is put upon the stretch, and divided throughout in its extent from the cervix to the internal orifice of the urethra. The finger is then passed over the uterus through this incision, hooked over the cornu, the adhesions are broken up, and the fundus brought forward into the vagina and out as far as the vulva. The round ligaments are then drawn and stitched together, and the loop stitched to the anterior surface of the uterus near the cervix. The uterus is then returned to its normal position. The bladder is adjusted, the vaginal incision closed by catgut, and a piece of iodoform gauze introduced.

Bond[6] shortens the round ligaments through a median abdominal incision.

Frederick[7] employs ventrofixation to hold up the uterus in operations for prolapse, and in those cases in which he has removed both tubes and desires to hold the uterus in position, time being an element in the operation. He prefers the Alexander operation, or some of its modifications, in cases of women who have borne children and when there are no adhesions or disease of the adnexa. Women who have never been pregnant are liable to have poorly-developed round ligaments, prone to tear away from the anchoring sutures. In these he opens the abdomen and shortens the round ligaments by one of the methods devised by Mann, Dudley, or Wylie.

Folet[8] does not agree with the view that retroflexion causes symptoms only when associated with inflammatory conditions. He believes that many mobile retroflexions give rise to definite symptoms, which disappear when the flexion is corrected. The operation known as cuneo-hysterectomy is directed to the restoration of the normal direction of the uterine axis in cases uncomplicated by inflammatory conditions.

Vaginal fixation of the uterus originated with Dürhssen. An excellent summary of that operation and of its modifications, by Mackenrodt, is given by Curtis Webb,[9] and we think that our readers will find his authoritative descriptions useful. Dürhssen operates as follows: Having pulled the anterior lip of the cervix down to the vulva with a volsellum, he curettes the uterus for the endometritis, which nearly always exists in displacements of any duration, and if the cervix is much hypertrophied he performs a low amputation, as a large cervix tends to prevent the organ remaining in the anteflexed and anteverted position in which his operation fixes it. An assistant now holds the volsellum that is drawing down the cervix, and the operator makes a transverse incision 1½ cm. long over the insertion of the anterior vaginal wall into the cervix, the upper lip of the wound is drawn upwards with a volsellum, and the incision is prolonged on each side by 1 cm. The bladder is now separated from the anterior vaginal wall and uterus by the finger inserted through the incision, and is kept out of the way during the rest of the operation by an anterior retractor. The utero-vesical fold of peritoneum is seized with a Spencer Wells forceps and drawn down. It is opened by a sagittal incision, and the edges are sewn to the edges of the vaginal wound with catgut. The body of the uterus is now drawn forward either by inserting a stout steel sound with a considerable curve through the os, or by fixing a volsellum into the anterior wall as high

up as can be reached, pulling that down, and then fixing another one higher up, pulling that down, and so on until the fundus is reached and drawn out of the original incision. The posterior wall of the organ can now be examined by the finger, and any adhesions torn through or burnt with a thermo-cautery; the ovaries and tubes can also be drawn out and inspected and removed if necessary; and if there be any myomata on the body of the uterus, they can be enucleated. Two *silkworm* gut stitches are now passed in through the edges of the incision in the anterior vaginal wall, deep through the substance of the fundus, and out through the other edge of the vaginal incision. Before tying them, the vaginal incision, with the attached edges of the peritoneal cut, is closed by a continous catgut suture. The cervix is now loosed from the volsellum holding it down, and pushed up to its proper position, and the silkworm stitches are then tied. The vagina is packed with iodoform gauze, and the operation is complete.

The modifications introduced by Dr. Mackenrodt in his vaginal fixation were to avoid any risk of cutting the ureters, to make the ultimate position of the uterus not so sharply anteflexed, and to employ absorbent catgut in place of the non-absorbent silkworm gut.

In place of his original vaginal fixation, Mackenrodt now largely employs a modification which he invented in October, 1895, and which he terms "vesical fixation." He commences the operation with the same longitudinal incision through the mucous membrane of the anterior vaginal wall, separates the two flaps on each side of the incision, cuts the vesico-vaginal septum, and pushes the bladder up out of the way with the finger, at the same time separating a portion of the peritoneum from the posterior surface of the bladder. There is now a fairly large pouch of peritoneum visible between the bladder and uterus. This is grasped by a volsellum, and cut completely across high up, thus leaving one free edge of peritoneum on the back of the bladder and another on the front of the uterus, just below the fundus. These are sewn together with two or three catgut sutures, passing the stitches deeply into the substance of the uterus, but, of course, not entering the cavity. The free end of the vesico-vaginal septum, which normally is attached near the anterior lip of the cervix, is now sewn to the body of the uterus about the level of the internal os uteri, and the original longitudinal incision through the mucous membrane of the anterior vaginal wall is stitched with catgut. By this procedure the uterus is fixed in a normal position, being not at all anteflexed, and only normally anteverted; it is freely moveable, though it cannot

become retroverted (and so cannot prolapse), and only absorbent catgut being used, in a short time the organ is held in its place by peritoneal adhesions alone.

Sänger[10] has described an operation for prolapse, for which he claims good results. A suture is introduced just behind the portio in the median line of the posterior vaginal wall. After thorough dilatation of the sphincter ani, the left forefinger (protected with a rubber cot) is introduced into the anus, and inverts the recto-vaginal septum as much as possible. A vertical incision is made in the posterior vaginal wall with a scalpel, and crescentic, or V-shaped, flaps are dissected off from its lower end with scissors, their size varying with the amount of redundant tissue. While these flaps are held apart with forceps, the upper edges of the wound are detached in the same manner. When the peritoneum is reached, it is carefully pushed upward with the finger or a gauze-pad; the rectum is separated with the same care. The edges of the levator ani are also detached as low down as the vulva.

The flaps are now cut away, bleeding vessels being caught with forceps. The denuded surface resembles that made in Hegar's operation, except that it extends higher and also approaches nearer to the anus, and extends laterally into the para-vaginal connective tissue. The upper sutures (silk) are passed in the usual manner, buried catgut being used if there is an extensive rectocele. Towards the lower end of the wound the vaginal edges alone are included in the sutures.

An entirely new plan of treating prolapse has been devised by Inglis Parsons.[11] It consists in producing a localised aseptic cellulitis by injecting into each broad ligament 15 minims of a 25 per cent. solution of **Sulphate of Quinine.** In a second paper on the same subject[12] he gives the results of his earlier cases, and claims that they are entirely satisfactory. We have had the opportunity of examining some of them nine to twelve months after treatment; the uterus had kept up in very good position.

THERAPEUTICS.—The following formulæ have been selected from those appearing in the therapeutic columns of various journals.

Vaginal Douche[13]*:—*

℞ Powdered Alum		Hydrastine Sulph.	gr. xl
Powdered Boric Acid		Carbolic Acid	
Powdered Borax	āā ʒiv	Oil of Cinnamon	āā ♏lxxx

Triturate. Sig.—Use 1 teaspoonful in a pint of hot water for vaginal injection once daily.

Douche for Gonorrhœa[14] :—

℞ Alum		Carbolic Acid	
Borax	āā gr. 450	Essence of Thyme	āā gtt. 30
Quinine Sulphate	gr. 15	Glycerin	gr. 3,000

M. A tablespoonful, in a pint of warm water, to be used as a vaginal injection two or three times a day.

An Antiseptic Vaginal Douche[15] :—

℞ Naphthol α	3	Distilled Water	1,000
Alcohol	26	M.	

Or,

℞ Naphthol β	5	Aquæ dest. calid.	ad 1,000
Alcohol	30	M.	

Powder for Vaginal Dressings[16] :—

℞ Iodoform		Magnesium Carb. saturated	
Powd. Benzoin		with Oil of Eucalyptus,	āā par. aq.
Powd. Cinchona	āā par. aq.	M.	

Vaginismus Suppositories[17] :—

℞ Cocaine Hydrochlor.	gr. iij	Strontii Bromid.	gr. iv
Ext. Belladonnæ	gr. ijss	Ol. Theobrom.	ʒij

M. Ft. suppositor. vaginal.

Anæsthetic Tents.[18]—Laminaria tents may be soaked for eight days be ore use in :—

℞ Ether	85 parts	Cocaine (pure)	5 parts
Iodoform	10 parts		

Uterine Hæmorrhage Depending upon the Presence of Fibroids[19] :—

℞ Ergotinæ	gr. j	Hyoscyaminæ	gr. $\frac{1}{100}$
Strychninæ Nitratis	gr. $\frac{1}{60}$	Aquæ dest.	q.s.

M. et ft. solutio. Sig.—Use hypodermically every fifteen minutes until four doses shall have been given; after which use four times a day.

Treatment of Metrorrhagia[20] :—

℞ Ergotini		Ext. Hyoscyami.	
Quininæ Sulph.	āā gm. 4	Pulv. Digital. Fol.	āā gm. 0·40

M. et ft. pil. No. xl. Sig.—Take from 5 to 10 pills daily.

Menorrhagia with Dysmenorrhœa[21] :—

℞ Ext. Fluid. Hydrastis Canad. | Ext. Fluid. Viburn. Prun. āa gm. 15

M. Sig.—10 drops every two hours in a little sugar and water.

Amenorrhœa Powders[22] :—

℞ Pulv. Calumbæ		Ferri Redacti	cgm. 0·50
Pulv. Saffron	āā gm. 1	Aloes Pulv.	cgm. 0·30

M. ft chart. No. x. Sig.—1 or 2 in honey or preserves after the evening meal.

Amenorrhœa Cachets[23] :—

℞ Strychnine Sulph.	gr. 1·80	Manganese Lactate	
Oxalic Acid	gr. 9	Iron Peptonate	āā gr. 120
		Comp. Ext. Colocynth	gr. 30

M. Divide into sixty catchets; 1 to be taken about an hour before each of the principal meals.

Amenorrhœa Pills[24] :—

℞ Strychnine Sulphate	gr. ½	Manganese Lactate	
Iron Peptonate		Scammony	āā gr. 20

Divide into forty pills; 2 to 4 pills to be taken every night on going to bed.

Dysmenorrhœa Pills[25] :—

℞ Ext. Belladonnæ		Ext. Hyoscyami.	grm. 0·2
Ext. Stramonii āā	grm. 0·1	Ammonii Sulphatis	grm. 1·5

M. et ft. pil. No. x. Sig.—1 every four hours until relieved.

Mental Depression in Diseases of the Pelvic Organs[25] :—

℞ Strych. Sulph.	gr. $\frac{1}{24}$	Ext. Hyoscyami	gr. iss
Quinine Sulph.	gr. iss	Ferri Redacti	gr. j

M. For one pill. Sig.—1 pill three times a day.

Headache Dependent on Ovarian Disease[27] :—

℞ Ammonii Bromidi	ʒvj	Tincturæ Gentianæ Compositæ	ʒiss
Ext. Hydrastis Fluidi	ʒss	Aquæ	ʒiv

M. Sig.—Dessertspoonful thrice daily.

REFERENCES.—[1] "Cent. f. Gyn.," No. 25, 1897; [2] "Med. Rec," June 4, 1898; [3] "Amer. Syst. of Gynæc.," vol. ii, p. 1-112; [4] "Arch. f. Gyn.," vol. xlviii, part 3, 1895; [5] "Brit. Med. Journ.," Epit., July 9, 1898; [6] "Lancet," Feb. 12, 1898; [7] "Med. Rec.," Oct. 2, 1897; [8] "L'Echo méd. du Nord.," May, 1898; [9] "Lancet," Aug. 28, 1897; [10] "Cent. f. Gyn.," No. 2, 1898; [11] "Brit. Med. Journ.," Oct. 23, 1897; [12] Ibid., ii, 1898; [13] House, "Progrès méd.," July 17, 1897; [14] Lutaud, "Journ. de méd. de Paris," Jan. 2, 1898; [15] "Allgem. Med. Cent. Zeit.," No. 20, 1898; [16] Lucas-Championnière, "Journ. de méd. de Paris," Feb. 6, 1898; [17] Touvaint, "Med. Rec.," June 19, 1897; [18] Lefour, "Practitioner," July, 1897; [19] Anderson, "Med. Rec.," Feb. 5, 1898; [20] "Twentieth Cent. Pract. of Med."; [21] Ibid.; [22] Dauchez, "Med. Rec.," Nov. 27, 1897; [23] Bloom, "Indépendance méd.," Jan. 5, 1898; [24] Lutaud, "Journ. de méd. de Paris," Dec. 19, 1897; [25] Steer, "Med. Rec.," March 19, 1898; [26] Tally, Ibid., Dec. 18, 1897; [27] Sinkler, Ibid., Feb. 5, 1898.

VARICELLA. *W. Gilman Thompson, M.D., New York.*

For the pruritus and to prevent scratching the eruption should be anointed with **Boric Acid** in equal parts of **Vaseline, Talc,** or **Zinc Oxide** (Comby [1]).

The rare complication of gangrene of the vesicles demands frequent bathing or spraying with **Corrosive Sublimate Solution,** or **Potassium Permanganate Solution** (Josias [2]).

J. J. Walsh [3] found a number of cases of unusual severity, in which the temperature reached 104° F., and in which the vesicles became confluent, leaving well-marked cicatrices.

REFERENCES.—[1] "Med. Times and Hosp. Gaz.," Sept. 4, 1897; [2] Ibid.; [3] "Hosp.," April 7, 1897.

VARICOCELE (Operation for). *Priestley Leech, M.D., F.R.C.S.*

Brault [1] has used the following method for severe varicocele in two cases: A large elliptical portion of skin is removed from the external and posterior surface of the affected side of the scrotum, its extremities being directed upwards and downwards. After this flap has been dissected away, the enlarged veins are exposed and resected between ligatures. The large and gaping wound is finally closed by bringing the lower to the upper angle of the ellipse, and stitching together the opposed margins of skin.

The operation can be performed rapidly and with but little hæmorrhage.

REFERENCE.—[1] "Med. Times and Hosp. Gaz.," July 31, 1897.

VARIOLA. *W. Gilman Thompson, M.D., New York.*

Compulsory vaccination has received a severe set-back in the recent parliamentary action in regard to this important measure which allows so much discretionary power as to practically abolish compulsion. This is a curious outcome in the face of most overwhelming statistics attesting the importance of vaccination.

A valuable additional contribution to the latter is made by Frederick W. Lowndes.[1] who gives his experience among the police of Liverpool where variola has long been more or less in evidence owing, doubtless, to the extensive foreign trade there. He dwells also upon the great value of re-vaccination among those who, like constables, are so often exposed to infection.

Kolbasseuko [2] obtained excellent results from the use of an **Ichthyol Ointment** applied thrice daily, so soon as the papules develop. By this means the desquamation was completed in half the usual time, surrounding cutaneous inflammation was prevented, itching did not annoy, and the temperature remained low. The inunctions were made in eighteen cases, and no toxic symptoms followed the use of the remedy, even among children.

The following is his formula :—

℞	Ichthyol	10	Lanolin	20
	Oil of Sweet Almonds	60		

Chloroform, olive oil, or glycerin may be used as basis if preferred.

REFERENCES.—[1] "Lancet," July 31, 1897; [2] "Vratch," No. 13, 1897.

VERRUCÆ. *Priestley Leech, M.D., F.R.C.S.*

Warty Growths on the Genitals.—Cottheil,[1] in a paper on epithelioma of the penis, concludes with the following very sound advice :—

(1,) Warty growths of the genitals, more especially in the male, are always to be suspected of malignancy, no matter how innocent they may seem.

(2,) They should be left entirely alone, or be thoroughly removed by knife or cautery.

(3,) Imperfect attempts at destruction, as with nitrate of silver, carbolic acid, etc., are especially to be avoided, there being many cases recorded in which they have stimulated a benign growth into malignant action.

REFERENCE.—[1] " Int. Journ. of Surg.," Jan. 1, 1897.

VERRUGA PERUVIANA. *T. Colcott Fox, M.B.*

This is also called Carrion's disease, after the student who heroically inoculated himself with infected blood and died of the Orova fever thirty-nine days later. It forms the subject of an interesting paper by Prof. Odriozola,[1] of Lima. The coloured portrait given of the disease is the best yet to hand, and the paper is freely illustrated with most interesting reproductions of photographs and microscopical sections.

Verruga is described as a general infective "fever," inoculable, one attack conferring immunity; telluric, endemic, localised to certain defiles penetrating certain tropical Andean mountainous districts of the departments of Ancache and Lima, which are watered by rivers overflowing each January and June. The inhabitants live unaffected, or more commonly protected by having suffered once; but the stranger who sojourns in the contaminated zone, or the passing traveller, risks an infection by contaminated water, or aliments, or air.

Domestic animals such as dogs, pigs, fowls, turkeys, horses, mules, llamas, cows, asses, contract the disease, and in them, especially the solipedes, the eruptions assume extraordinary proportions.

The *incubation period* lasts fifteen and fourteen days. The malady sometimes assumes so violent and intensely virulent an aspect that death takes place in a few days, and the characteristic eruption is

wanting altogether, or aborts. In such cases the *invasion period* is characterised first by cephalalgia, back-ache, articular and muscular pains, especially of the lower extremities. At the end of eight to fifteen days the fever sets in with a single rigor or repeated ones. The pain becomes intolerable, prostration extreme, thirst excessive, anorexia absolute, and the malady is in full evolution. The fever is remittent or intermittent, with acute anæmia, very rapid and very grave, complicated or not with multiple hæmorrhages, vertigo and syncope. The liver, spleen, and majority of the lymphatic glands are swollen. Petechiæ form, subdelirium, terminating in coma, ends the scene amidst intestinal (entero-colitis) and pulmonary (broncho-pneumonia) troubles.

In other cases the fever and general symptoms decrease in severity, and the characteristic eruption, which has been partially repressed, burst out in varying degrees of exuberance, and dominates the scene.

Sometimes, again, the pre-eruptive stages of incubation and invasion pass unperceived, unless careful observation is made, but then the slight evening rise of temperature, the inappetence, weakness and anæmia, the vague pains are noted, or perhaps a rheumatoid torticollis, melæna, or passing pseudo-tabes.

There are two types of eruption met with, and the type of fever varies accordingly. *The miliary or tubercular eruption* is the more superficial, and can commence by a petechia upon which a red papule forms, acuminate, shining like a dewdrop, which umbilicates, or as a kind of dead-white elevation of corneous aspect. These forms then increase and take on their typical aspect, and in size vary from a pin-head to a pea. They are red, of various shades, and the large acquire pedicles. After a time they exfoliate, and bleed and die away, or the larger ones ulcerate, and exude a yellowish transparent fluid, which dries into brownish crusts. This eruption generally appears first on the legs and in successive crops, and ascends upwards symmetrically. It may be local or general, discrete or confluent. The points of predilection are the anterior region of the legs and thighs, the posterior region of the forearms, the forehead, cheeks, ears, nose. Patches are formed about the knees and elbows; the trunk is more often respected. All the mucous membranes may be attacked, especially the conjunctiva; and autopsies have revealed the lesions in the intestines, liver, spleen, kidneys, pancreas, Peyer's patches, peritoneum, bladder, testicles, bronchi, lungs, pleura, periosteum, muscles, and even nervous centres.

The muliary or globular forms of eruption, so called from the

resemblance to the voluminous tumours of the solipedes, commence by the derma or hypoderma, and develop with great rapidity. The site of predilection is the face, the knee, back of hands, especially the region of the metacarpo-phalangeal articulation of thumb and index finger. Only the miliary eruption is found in the interior of the body. The lesions are senile or pedunculated, red, shining, exfoliating, from a note to a small apple or orange in size. They may undergo progressive involution or they ulcerate, and often severe hæmorrhage ensues ; or they may suppurate or be the seat of gangrene. The eruption also may commence as vesicle or pustule, but the lesions soon assume one of the classical forms described above. The miliary lesions only are met with in the viscera.

The author then proceeds to discuss the histology of the lesions and the subject of their causation by germs. This part of the paper is somewhat disappointing. Letulle seems to have worked at the histology for the author. The miliary verrugas are described as consisting of a dense infiltration of various inflammatory elements, obliterating all traces of hair, glands, and fat. No giant cells, caseation or suppuration, were found. The lymphatic and connective tissue cells are living, well nucleated, and mostly in a state of mitosis. Spaces are seen filled with albuminous serosity, poor in fibrine. The older, larger, ulcerated lesions show that the epithelial and papillary layers have undergone hypertrophy, and that the epithelium has vacuolated, the nuclei proliferated, or the whole become infiltrated with leucocytes, and then ulceration occurs, with formation of purulent foci. The lymphatic spaces become gorged with leucocytes, and now secondary pyogenic organisms are found.

As for the bacteriology, the author states that certain bacilli, colourable by the Weigert-Gram, phenicated thionine, Nicolle's and even Ziehl's methods, are constantly found. They resemble Koch's bacilli in size, but can be larger. They lie in the spaces, or rarely in cells. In the blood of a case, Odriozola and Florez have found a very short bacillus (2–6 μ). Cultures on bouillon have given the same microbe, but longer. Inoculations on the dog have so far proved a failure.

Surgeon Chastang,[2] of the French Pacific Squadron, saw several cases of V. peruviana in Peru, and discusses some recently-published views concerning it. We will allude to some points not covered in Odriozola's paper.

Incubation Period.—Some persons are said to develop the disease a few days after their arrival in an epidemic area. Antúnez gives the incubation period as one to three weeks in most cases. Castillo says it rarely exceeds three to four months.

Symptoms.—Castillo has never observed the dysphagia said by Dounon to be characteristic. He believes such a symptom must have been due to a pharyngeal eruption. The eruption may appear immediately on the acute stage, or some time after all the general symptoms have subsided, or even during apparent convalescence. Prognosis is grave when the eruption is delayed. Hæmorrhages from eruption have been greatly exaggerated in French text-books. General symptoms, often intense, soon return after the appearance of the eruption. Sweating is an important symptom. Castillo does not agree with Odriozola as to the occurrence of suppuration.

Etiology.—It is inoculable, but not otherwise contagious. It is not invariably the case that one attack conveys immunity. The popular belief is that water is the agent of conveyance. Chastang regards it as telluric.

N.B.—As we go to press we learn that Odriozola has published a book on the subject.

REFERENCES.—[1] "Presse méd.," July 27, 1898; [2] "Arch. de méd. Navale et Coloniale," Dec., 1897, p. 417.

VERTIGO (Laryngeal). (See "Larynx, Diseases of.")

VISION (Disorders of). *William Oliver Moore, M.D., New York.*

Toxic Amblyopia.—Campbell[1] reports a case of tea amblyopia in a male, aged forty-six, who was in the habit of drinking twelve cups of tea of a strong and cheap variety; only when this was discontinued did the vision improve. Beer and tobacco, which were also used, were discontinued, but not knowing of the tea the amblyopia did not improve, and abstinence from tea caused improvement.

Treatment of toxic amblyopia by **Injections of Serum** is suggested by De Wecker,[2] who used a rich serum, of 1 of **White Phenic Acid**, 2 of **Chloride of Soda**, 8 of **Sulphate of Soda**, and 4 of **Phosphate of Soda** in 100 parts. He used at first 50 and 60 grammes, and reached even 200 grammes. Ten to fifteen minutes' time in injecting from 60 to 100 grammes should be allowed; it should be warmed, and the place of injection in cold weather covered by warm cloths. The visual acuity improves after three or four injections, in consequence the patients frequently will not continue the treatment, which is painful.

Extraction of Lens in Extreme Myopia.—Panas[3] gives the following brief history, saying that the Abbot Desmonceaux, a philanthropic physician rather than an oculist, advocated in 1776 the removal of the transparent lens in the treatment of myopes of two or three inches focus.

Beer referred to the removal of the clear lens in 1817; and it was

again brought forward in 1858 at the Heidelberg Congress. No headway was, however, gained until Ruiz and Köenig advocated it in 1888; at the same time Fwkala showed two cases at the Medical Society of Vienna, successfully operated on by discission, and in 1890 published nineteen similar cases in patients under twenty-four years of age, with more than 13D of myopia. Panas, from a total of four hundred cases of lens extraction in myopia, concludes that it is perfectly justifiable in high degrees of progressive myopia, from 16D upwards. The operation is not free from miscounts; the percentage of failures may even be greater than appears from the published reports. Nevertheless, the gravity of the complications to be dreaded in unrelieved myopia ought to commend the operation even at the risk of failure.

Jackson,[4] of Philadelphia, contends that most writers on this subject have failed to demonstrate scientifically the amount of myopia to be corrected by removal of the lens. He says the amount of the *axial* myopia is what we may expect to correct by the removal of the lens. If the myopia were due to excessive curvature of the cornea or crystalline, the amount corrected would be different. The enlargement of the retinal images secured by the removal of the lens, as compared with the retinal images obtained by correcting lenses placed at the anterior focus of the eye, amounts to over 50 per cent. Such an enlargement is the chief benefit to be derived from the lens removal.

In doing the operation, the existing corneal astigmatism should be taken into account, and the *incision* so placed as to correct it, or to utilise it to partly correct the astigmatism produced by the operation.

Jackson further says that if the myopia is so high that correcting cannot be worn, the power of accommodation was of no practical value. He would advise the operation only where correcting lens could not be worn.

Von Hippel[5] has reported the *removal of the lens for high myopia* in one hundred and fourteen eyes. Two forms are recognised by him—one due to abnormal growth of the eyeball by muscular compression during development; the other congenital, or begins very early, and progressively increases, leading to choroidal disease, the removal of the lens being the only help.

Discission, with subsequent evacuation of the lens particles, is the best method. The time required for the lens to become opaque after discission varied; three days and twenty days were the limits between discission and extraction.

Extraction, as a rule, was done from the fourth to the eighth day; both eyes, as a rule, were operated upon; iridectomy was done several

times. The amount of myopia varied from 14D to 25D. Choroidal disease did not complicate. Capsulotomy was performed in almost every case as the final act. Operative astigmatism occurred in thirty-five instances.

Refractive Changes in Diabetes.—Risley[6] reports that with disappearance of sugar in the urine the hyperopia increased from + 2D to + 5D. Ten days later the sugar reappeared, and the glass was reduced to + 3D.

Bulson,[7] in speaking of the value of *weak lenses* in moderate errors of refraction, says that not every error demands correction by properly adjusted glasses any more than every weak ocular muscle demands a tenotomy. Every case must be studied for its own particular needs. The nervous individual is more susceptible to the influence of slight irregularities in vision than the phlegmatic.

Effects of Strain of the Accommodation. — Schoen[8] thinks chorioretinitis of the ora serrata comes on with other symptoms in eyes with strained accommodation, and appears in an acute or a chronic form, the former accompanied often with opacities of the vitreous and scleritis.

The causes are hyperopia and astigmatism according to the rule. The results are astigmatism against the rule, equatorial cataract, accommodative excavation, latent convergent strabismus, and chorioretinitis of the ora serrata.

When the ora serrata is displaced forward the zonular fibres slacken, the lens pushes the iris forward, and the width of the chamber-angle is lessened. These changes, according to their extent, fall into four categories : (1,) The normal position of the iris and lens ; (2,) Ordinary accommodation, the outer half of the iris concave, the inner half convex, the anterior chamber shallower in the centre ; (3,) Pushing forward of the entire iris, more or less noticeable prolapse of the lens, convexity of the entire surface of the iris, shallowing of the entire anterior chamber ; (4,) Apposition of the iris to the cornea, obliteration of the anterior chamber, absolute glaucoma.

The pressing forward of the lens leads to an increase in refraction ; and the tilted position which it may assume leads to acquired astigmatism, usually against the rule. The author's cases of glaucoma have almost exclusively been in eyes with uncorrected hyperopia or astigmatism, and he believes that the correction of the refractive error would, in many cases, have prevented the development of glaucoma.

The Diagnosis of Ocular Paralyses.—Duane[9] points out that this is based partly upon the characteristic restriction of the movements of the affected eye in some particular direction, and partly upon the

relations of the double images. In either case it depends upon the fact that, in order to move the eyes in any given direction, a special muscle or set of muscles is brought into play in each eye, which muscle or muscles move their respective eyes at precisely the same rate, and which gradually cease to act as the eyes are carried in the reverse direction. While in all pronounced cases of ocular paralysis the lagging of the affected eye behind the other in the performance of associated movements is easy to recognise, the most satisfactory and certain evidence of the trouble is obtained from the double images. For determining these, the following method probably gives the most accurate results.

The patient is placed (preferably in a dark room) with his head fixed and with his eyes in the primary position—*i.e.*, with both directed straight ahead and on a level, and a red glass is placed before one eye. A lighted candle, which, in order to avoid the disturbing effects of projection, should be not less than three or four feet from the patient, is carried successively to the right, left, up, down, and obliquely, and the patient is asked whether he sees two images of the flame, what is their colour, how they are placed with regard to each other, how far they are apart, and whether the distance between them increases or diminishes as the candle is carried in each direction. If he sees one flame (yellow, with a pinkish border), he has binocular single vision. If he sees one flame, which, however, is pure red or pure yellow, he probably has double vision, but ignores one of the images (monocular vision). If he sees two flames, one red and the other yellow, he has diplopia, the nature of which is indicated by the relative position of the red and the yellow flames.

Hyperbolic Lenses.—Lohnstein,[10] who has himself conical corneæ, shows that hyperbolic lenses do not even approximately correct this defect. The theoretical correcting glass is concave in the centre, convex at the periphery, and is therefore fundamentally different from a hyperboloid. He discovered, by experimenting on himself with hyperbolic lenses, that he saw much worse through the centre, and much better when he looked through the margins. The margin of such a lens is equivalent to a *cylindrical lens*. Raehlmann himself, who first suggested hyperbolic lenses, noticed that patients decentered their lenses until they found a spot which gave the best result. The same may be said of conical lenses employed by Angelucci and others.

It thus appears that hyperbolic and conical lenses have specific or special action suiting them for the correction of keratoconus, but act only as cylinders. Cylinders have the further advantage that their

whole surface is available for use. Their effect on the vision, however, much depends on the size of the pupil. Thus, Lohnstein, with his 11D cylinder, sees much worse in bright daylight, as the pupil is then smaller.

Arecoline, a Myotic.—Bietti [11] finds the alkaloid obtained from the betel nut a myotic. A 1 per cent. solution dropped into the conjunctiva causes burning, with some lachrimation and hyperæmia. After five minutes the pupil begins to contract—the greatest, in about twelve minutes; this lasts for about a quarter of an hour, after which the pupil gradually returns to the normal condition in about two hours.

The stronger the solution the more lasting the effect; the hydrobromate is the salt used. It appears to act more promptly and more energetically than eserine, but its duration of action is less.

Euphthalmine a New Mydriatic.—Trentler [12] concludes as follows: (1,) Euphthalmine is a powerful mydriatic; a 5 per cent. solution produces maximum dilatation of the pupil in about the same time as a 1 per cent. solution of homatropine; (2,) The mydriatic action is more prompt in young people: (3,) As a mydriatic it has the advantage over cocaine that it does not injure the corneal epithelium; (4,) It affects the accommodation less than homatropine; (5,) The mydriasis and the pareses of accommodation take place more quickly than after the use of homatropine.

Holocaine as a Local Anæsthetic.—Wurdemann and Black [13] report that holocaine is feebly soluble in cold water; that a 1 per cent. solution is bactericidal, and does not require sterilising by heat. The instillation causes slight smarting, which lasts thirty seconds, when anæsthesia is produced, which continues for ten minutes. Its advantages are: Its non-toxic effects in local use, the rapidity of the anæsthesia, its continuance, and the non-dilatation of the pupil, making it useful to instil before irritating applications, and the removal of foreign particles from the cornea.

Hotz [14] considers it of advantage for superficial operations only, as the anæsthesia is not profund enough for cataract, iridectomy, and the like.

It does not contract the conjunctival blood-vessels, and therefore causes neither bleaching of the eye nor drying of the corneal epithelium; it has no effect upon the accommodation.

It differs from cocaine then on being more brief in its action, and in not dilating the pupil or contracting the blood-vessels.

Chevalier [15] says outside of ophthalmic work it should be used with

caution, for death occurs without prodromes. It has no effect on the vaso-motor system, nor does it change the tension.

Deneffe[16] found 2 drops of a 10 per cent. solution instilled with one minute intervals were sufficient to produce complete anæsthesia, which lasted about twenty minutes.

Guttman,[17] in speaking of holocaine, which is p-diaethoxyaethenydiphenylamidin, says it is a crystalline base from which is formed a chloride, the latter soluble up to $2\frac{1}{2}$ per cent. in cold water. Boiling does not decompose a 1 per cent. solution, which is also permanent even in open vessels. It can be sterilised only in vessels which are free from alkali; those of porcelain are recommended.

Scopolamine as a Cycloplegic.—Murrell[18] finds this drug the most positive and prompt cycloplegic we have. A solution of $\frac{1}{10}$ of 1 per cent. is sufficient; 2 drops are sufficient for the prompt suspension of the accommodation; in this strength the ocular tension is not increased, and no redness of the conjunctiva takes place. It is convenient, reliable, safe, and keeps well and possesses fewer objectionable features than any other cycloplegic.

Electrical Introduction of Mydriatics and Myotics.—Pansier[19] commends the use of electricity in cases in which the iris does not quickly respond to the applied drug. In a case where contraction of the pupil was required, a 1 per cent. solution of eserine was applied night and morning for several days with no effect. Some 1 in 300 solution of eserine sulphate was then instilled, and a *moist electrode* placed on the eyelid, through which a descending current of 2 milliampères was passed for forty minutes. At the end of this time the pupil had diminished in diameter from 7 mm. to 2 mm.

The electricity facilitates the absorption. The current was applied with equal success in two cases where atropine was used; in these cases a current of 3 milliampères was used, the *positive pole* being placed on the nape of the neck. One noticeable point was that both dilatation and contraction of the pupil, when aided by electrical means, were of very short duration, rapidly disappearing.

The objection to passing the current through an eye bath filled with the drug is that its action is apt to be too powerful. From the direction of the current employed he thinks the action more probably one of *cataphoresis* than of *electrolysis*.

Circum-Lental Photography.—Maddox[20] has suggested the simple idea of photographing the shape of the cornea, by photographing the reflections of various symmetrical devices from it on the principle of Placido's disc. He surrounds the lens of a photographic camera with a bright surface, the reflection of which from the cornea of a patient

while he is made to look steadily at the centre of the lens, shall appear to surround his visual axis, or rather the point of the cornea traversed by it. In this way squints can be photographed with far greater accuracy than before.

Placido's disc, or a hemisphere marked similarly with concentric rings, can be easily photographed, and may afford great help in selecting the best site for an optical iridectomy, and in showing optical difficulties in connection with irregular curves of the cornea.

Electric Light, effects on the Eye.—Ray[21] reports the effect of intense flashes of electric light on the eye. Temporary blindness, and a greyish discolouration in the region of the macula was noticed. The changes in the fundus were similar to those seen in snow blindness. The incandescent lamp seems best suited for general use; but best of all, in the author's experience, is the student lamp.

Hill[22] (H.M.S. "Victory") reports two cases of electric light blindness. In one case, after looking at an electric drill for three minutes, at a distance of ten to twelve yards, on resuming his work everything appeared to him of a deep gold colour. Three hours later great pain and lachrimation ensued; this was relieved by applications of **Cocaine** and cold water. Another case from the same cause, and with the same symptoms: injection of the conjunctiva, pain and lachrimation. The electric drill acts by fusing a hole through the steel, and the light is intense. These cases are, in fact, analogous to snow blindness, and, as in them, the pernicious effects of the electric light are probably due to the ultra violet rays of the spectrum.

REFERENCES.—[1] "Lancet," March 12, 1898; [2] "Ann. d'oculistique," June, 1897; [3] "Rec. d'ophthal.," No. 1, pp. 54–57, 1897; [4] "Phil. Polyclin.," Jan. 29, 1898; [5] "Deut. med. Woch.," No. 25, 1897; [6] "Trans. Amer. Ophthal. Soc.," p. 121, 1897; [7] "Amer. Med. and Surg. Bull.," Jan. 10, 1898; [8] "Amer. Journ. Med. Sci.," Dec., 1897; [9] Ibid., Jan., 1898; [10] "Klin. Monats. f. Augen.," April, 1897; [11] "Archiv. di Othalmol.," vol. v, Fasc. 1, 2; [12] "Klin. Monats. f. Augen.," Sept., 1897; [13] "Ophthal. Rec.," Oct., 1897; [14] "Journ. Amer. Med. Assoc.," Nov. 13, 1897; [15] "Bull. gén. de thérap.," liv. 20e, 1897; [16] "Bull. de l'Acad. Royal de méd. de Belgique," 1897; [17] "Deut. med. Woch.," No. 11, 1897; [18] "Arch. d'elect. méd.," June 15, 1897; [19] Ibid.; [20] "Ophthal. Rev.," April, 1898; [21] "Amer. Journ. of Ophthal.," Dec., 1897; [22] "Lancet," July 24, 1897.

XEROSIS OF THE CONJUNCTIVA. (See "Conjunctiva, Diseases of."

YELLOW FEVER. *W. Gilman Thompson, M.D., New York.*

Wolfred Nelson[1] writes of experience based upon eight years in Central America and the West Indies. He administers at the outset **Quinine** with dilute **Sulphuric Acid, Sodium Sulphate,** and water.

This is followed by a **Vapour Bath** and thorough sweating between blankets. Dilute mineral acids, lemonade, etc., were freely given. Pyrexia is treated with the ice pack. The usual caution against early feeding is emphasised.

Sanarelli,[2] of Monte Video, has used **Serum** from horses inoculated with his bacillus icteroides in the case of eight patients, five being in a critical condition on the fourth day of the disease. One of the latter recovered after receiving 80 c.c. of the serum. Of the three remaining cases, all recovered. A fall in temperature followed each injection. Two children recovered after black vomit. In fourteen other cases the serum was injected intravenously. Of all his cases thus far inoculated, 66 per cent. have recovered.

REFERENCES.—[1] "New York Med. Rec.," Aug. 6, 1898; [2] "Ann. de l'Instit. Pasteur.," No. 5, 1898.

An Atlas of the Bacteria Pathogenic in the Human Subject (Part II).

By SAMUEL G. SHATTOCK, F.R.C.S.

As stated in the previous volume of the "Annual," the object of this Atlas is to present graphically from original preparations the chief bacteria which are pathogenic in the human subject. The figures now introduced comprise nearly all the remaining bacteria of interest. Certain are omitted, chiefly because of the delay their preparation would have occasioned. Amongst such omissions (which may be made good on a subsequent occasion) may be named the Bacillus of influenza, Diplococcus intra-cellularis, Bacillus enteritidis, Bacillus melitensis, Streptothrix pseudo-tuberculosa, etc.; and time will surely add yet others as causative agents, especially in the group of infective granulomata.

Amongst the micro-organisms depicted in the present series, two of the most important in practical medicine are the Typhoid* and Diphtheria bacilli; and a succint statement may be made in regard to the bacteriological diagnosis, firstly of typhoid fever, and secondly of diphtheria.

Typhoid Fever.—Although the bacteriological diagnosis of typhoid during life can be made from the discovery of the typhoid bacillus in the stools or the urine, such methods are of little practical avail, necessitating, as they do, a well-equipped laboratory and the expenditure of much time.

Widal's Reaction.—However interesting it might be to give an account of the observations of previous investigators which led up to Widal's application, neither space nor the main object of the present article will allow of it. Widal was, however, the first to demonstrate that a reaction, which had been previously shown to take place between the serum of animals experimentally immunised against certain diseases and cultures of the specific bacilli producing such, could be obtained during the period of infection, and in this way serve as a means of clinical diagnosis. If the blood serum of an animal

* Other illustrations of this are given in the preceding volume.

which has been rendered immune against, *e.g.*, the typhoid bacillus be added in a test tube to a living broth culture of the same microbe, the bacilli in the culture rapidly cohere and subside to the bottom of the tube. This is known as "clumping" or "agglutination," and is taken to indicate the presence of an agglutinating substance or "agglutinin" which has formed in the blood in consequence of the presence of the bacilli experimentally introduced into the animal. The blood serum acquires this property, however, before immunisation is established, *i.e.*, during the progress of infection itself, and the property may be utilised as a means of diagnosis, for the important reason that the serum of a typhoid patient whilst it will agglutinate typhoid bacilli, will not agglutinate those of other kinds. What is true in the case of typhoid, is true also of other bacterial diseases. The phenomenon admits of two applications; a disease may be diagnosed by the action of the blood serum upon a known bacillus; or a bacillus may be diagnosed by the action of a known "immunised serum." It is to the former that importance attaches in practical medicine and surgery.

After this brief explanation of the *rationale* of Widal's reaction, the method of carrying it out may be described.

The broth culture of typhoid bacillus used must not be more than of twenty-four hours' growth, and must be grown in the incubator at 37° C., preferably in a broth that is not alkaline but amphoteric (giving simultaneously an acid and an alkaline reaction to blue and red litmus paper). There arises even at this point the first possible source of fallacy. If such a broth culture be examined by the hanging-drop method (fully described in the previous volume), clumps of bacilli are not rarely encountered, and these, at times, of considerable size. In all cases, then, the broth culture is to be first passed through a small double cone of filter paper into a watch-glass, in order to remove any such clumps present; and after this, a hanging drop is to be prepared for comparison with the result obtained when the reaction is tried for. One important difference to be observed in the microscopic preparations is that although in the broth culture clumps may be met with, the field between contains varying numbers of bacilli in active movement; whereas when clumping occurs from the action of the serum of a typhoid patient, the bacilli become motionless between the bacterial islands, if any remain incoherent.

How to test the Blood Serum.—The reaction is obtainable quite early in the course of the disease, as early as the fifth day, and it persists during convalescence, but for an extremely variable period afterwards. Not rarely the reaction will continue for a year, but it

may last many years, and might without enquiry into a patient's history be erroneously taken to prove the existence of typhoid on the occasion of some subsequent illness suggestive of it.

The blood to be used in the test is withdrawn either from the lobe of the ear or from the back of the finger near the root of the nail; and the puncture is best made by means of a surgical or other needle with a cutting edge as well as a sharp point.

If the test cannot be carried out at the time, the blood must be collected in a pipette of the kind represented in the adjoining wood-cut (*Fig.* 93), by breaking off the sealed ends of the capillary tube on

Fig. 93.—Pipette containing blood which has separated into clot and serum, the former occupying the lower half of the bulb. (Nat. size.)

either side of the bulb, and applying one end to the issuing blood. When the expanded part is filled, the ends are hermetically sealed in the edge of the flame of a spirit-lamp. Blood so stored can be tested at leisure, and (if kept in the dark) retains its qualities for long periods. Even if dried the blood will provide the reaction; for this purpose it is collected on a series of cover-glasses, which, after being allowed to dry, may be, if necessary, posted to an expert for examination. If dried blood is used, a solution of the specific substances in it is obtained by means of distilled water; but the method is an inferior one, owing to the difficulty of estimating the dilution reached —a matter of cardinal importance.

Nine loop-fulls* of the filtered broth culture of typhoid are placed *separately* and fairly close together on an ordinary microscopic slide, the loop or öse being introduced as many times into the broth. The platinum wire is now sterilised in the flame, and with it a single loop of the blood serum is transferred to the slide and well mixed up with the whole of the nine droplets of broth culture. If the test is carried out on the spot, a few drops of blood may be allowed to flow from the lobe of the ear or finger, and to clot in a small test tube or a watch-glass; the serum so furnished will be ample.

If the blood to be used has been stored in a pipette, the two ends of this are broken off, and the contents blown gently on to a slide. A hollow-ground slide having been prepared with a ring of vaseline, and a clean cover-glass (before commencing the proceedings just described), a single öse of the admixed broth and serum is placed

* For a figure of the "loop," see the preceding volume (page 578).

on the centre of the cover-glass and gently spread out so as to cover an area about 4 millimètres in diameter; the cover is then inverted, placed over the hollow of the slide, and gently pressed at the margin so as to render the enclosed space quite air-tight. The preparation is now placed beneath the microscope and examined, with a $\frac{1}{12}$ homogeneous immersion, or a $\frac{1}{6}$ objective, which answers perfectly well for a study of the result. As the preparation is unstained, much of the light (if $\frac{1}{12}$ is used) must be cut off by means of the diaphragm—the bacilli are otherwise scarcely visible.

If Widal's reaction ensue, it is seen in the movements of the microbes becoming sluggish and ultimately ceasing, whilst they become at the same time aggregated into clumps of the kind represented in *Fig.* 1, *Plate XVIII.*

The time allowed for the observation should be half an hour. If no reaction has ensued within this time, the result is to be reckoned negative, and the existence of typhoid may be excluded, not with absolute certainty, but with very high probability. In the case of such a negative result, similar examinations must be repeated during the course of the disease, as the reaction, for causes not known, is in some cases delayed. If, however, the bacilli become motionless, even without any marked clumping, or if they become motionless, and clump, the result is to be reckoned as positive.

Before deducing the existence of typhoid in these circumstances, nevertheless, the result of further dilutions must be tested, for the reason that the reaction ensues in certain cases in which typhoid does not enter into the question, and moreover, that the blood of healthy persons possesses at times an unusual degree of the agglutinising power which is normally present.

The diagnosis, it may be said, becomes strengthened in proportion as the reaction persists on dilution. In certain instances it has been ascertained that a dilution of 1 to 5000 will yet suffice for its production, and even a considerably further dilution than this. The test is to be repeated, therefore, with a dilution of 1 in 20 (*i.e.*, 1 part of serum to 19 of the broth culture), and if still observed, with a dilution of 1 in 50. The last limit may be held to suffice for the exclusion of other possible sources of the phenomenon, and to establish a diagnosis of typhoid. The dilution of 1 in 20 is best made by placing nineteen loops of the broth separately on a slide, and mixing with a single loop of the serum; that of 1 in 50, by diluting 1 loop of serum with 10 of distilled water, and mixing one loop of this with four loops of the broth culture.

After use, all the slides, cover-glasses, and other materials are to be disinfected in a 1 in 20 carbolic acid solution.

Diphtheria.—For the bacteriological investigation of a supposed case of diphtheria it is necessary, firstly, to make a microscopic examination of a culture from the throat or nasal passages; and secondly, if the investigation is to be complete, to inoculate animals with a pure culture in order to test the degree of virulence which the bacillus possesses, *i.e.*, both the morphological and the physiological characters of the microbe should be determined.

The inoculation of test tubes for the purpose of diagnosis is carried out as follows: The best culture medium is Löffler's blood serum, though ascitic or pleuritic, or even hydrocele fluid answers sufficiently well; the medium is solidified by heat in test tubes placed on the slant to furnish a surface on which the microbes may be sown. The serum slant may be inoculated by means of the platinium öse; this having been first sterilised in the flame is drawn over the tonsil or pharynx (over the membranous exudation if such is present) and is then rubbed over the whole surface of the medium so as to distribute the organisms present as widely as possible. Or the serum may be more effectively inoculated by means of a small swab of cotton wool. The swabs for this purpose are made by passing a strip of cotton wool through an eye at the end of a piece of stout copper wire around which the material is then twisted for a short distance

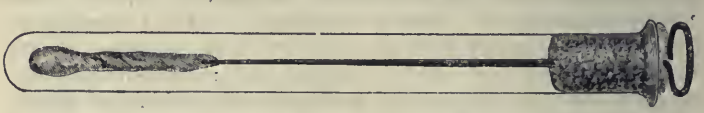


Fig. 94.—A reduced figure of the swab, etc., described in the text.

(*Fig.* 94.) The opposite end of the wire is bent to afford a hold, and a second piece of wool is wrapped around near this as a plug which closely fits the mouth of the test tube, into which the swab is inserted.

A set of such tubes may be sterilised by being heated for an hour in the hot air steriliser at 150° C., and can be kept ready for use. When about to be employed the swab is removed from the tube and applied to the most promising area of the throat; it is then introduced into the culture tube and gently moved over the surface of the serum. The swab may then be destroyed in the flame. After inoculation the culture tube is incubated at 37° C., having been first capped to prevent any drying of the medium. Incubation of the tube is essential, and without an incubator the further investigation

is preferably handed over to an expert, or to one of the Associations or Institutes where such work is carried out.

Culture tubes and swabs may be obtained, moreover, from many such sources. After twenty-four hours' incubation the growth of the diphtheria bacillus appears as small hemispherical, greyish, shining colonies; where such have arisen so closely as to coalesce the circular outline is wanting. As a rule, colonies of other bacteria develop concurrently, such, *e.g.*, as staphylococcus pyogenes aureus, staphylococcus pyogenes albus, streptococcus pyogenes, sarcina lutea, or forms of yeasts. The colonies of the diphtheria bacillus cannot be distinguished with any certainty by their macroscopic characters, though yellow colonies may be ignored. If no suspicious colonies appear for individual examination, the öse is swept over the culture and the material transferred to cover-glasses, on each of which a drop of distilled water has been previously placed, the examination being made in the dried state, by the technique fully described in the preceding volume.

Labour may be saved by using a single, long cover-glass on which a series of such preparations may be made and stained, in place of separate circles or squares.

The films having been allowed to dry they may be stained with carbol fuchsine or by Gram's method, but as satisfactorily and simply with Löffler's methylene blue as with any other dye :—

Concentrated Alcoholic solution of Methylene Blue 30 parts	Solution of Potash (1-10,000) 100 parts

The stain is allowed to act for five minutes and washed off in tap water, the cover-glasses being then placed on edge to dry or gently pressed between filter paper; when quite dry, they are mounted in xylol balsam.

The diphtheria bacillus is depicted and described on *Plate XIX.*

If no diphtheria bacilli are found, a second series of preparations should be made from another öse of the same culture, and if a negative result is again obtained, a third set. Where any doubt enters into the morphological diagnosis it is imperative to test the virulence of the bacillus upon animals. With this object a tube of broth is inoculated from a colony of the bacillus, and after forty hours' incubation 2 cubic centimètres of the shaken culture are injected into the subcutaneous tissue of the anterior or lateral abdominal wall of a guinea pig weighing 500 grammes. The broth used for the culture is prepared from minced veal which is allowed to ferment in order to remove the glucose present in it, and by so doing to reduce the amount of acid formed by the bacillus, the production of which acts

deleteriously upon the micro-organism and diminishes the amount of toxin elaborated by it.

It must be borne in mind that diphtheria bacilli present all grades of virulence, the virulence at one end of the scale diminishing until it entirely vanishes.

There are, that is to say, diphtheria bacilli of typical morphological form which have, presumably, lost their virulence, and the injection of a broth culture of which produces neither local nor general results in the animal upon which they are tested. In the lower grades of virulence a local swelling only results; in the higher, death ensues in from twenty-four to forty-eight hours; in the case of very high degrees of virulence, much smaller doses of such a broth culture are lethal within the same time; death may be deferred for seven or even twenty-one days when the virulence is low.

The crucial test, however, as to whether a bacillus is truly a diphtheritic one is not strictly speaking its possession in general of a pathogenic property but of one so specific that the local or general action of a broth culture is inhibited by the previous injection of the animal with anti-diphtheritic serum.

The true diphtheria bacilli, again, are characterised physiologically by producing an acid reaction in a 1 per cent glucose broth. This reaction is not given, *e.g.*, by Hofmann's bacillus—a form sometimes present along with that of true diphtheria, or met with in cases of sore throat where none of the true forms occur (see *Plate*).

Lastly, it is a fact, with much practical bearing, that bacilli having the morphological characters of those of diphtheria, and highly virulent, as tested upon the guinea pig, may be isolated from the throats of persons, who themselves exhibit no disease and have not suffered from diphtheria; since such individuals, whilst themselves immune, may serve as carriers of infection. This has been particularly shown in the case of outbreaks of diphtheria in schools.

And what is equally important, after a diphtheritic patient has quite recovered from the disease, that is to say, after having acquired an immunity from the disease by reason of having had it, he may bear about diphtheria bacilli in the throat for months, harmless enough to himself but capable of conveying the disease to others. It becomes, hence, strictly necessary to make repeated bacteriological examinations of the throat after convalescence is established; and if the patient is to be no longer a source of danger to others, his isolation must be maintained so long as the bacilli persist.

Formulæ of the stains referred to in this and the preceding volume.

Carbol fuchsin (Neelsen's solution):—

Fuchsin	1 gramme	Aqueous solution of Carbolic Acid (5 per cent.)	100 c.c.
Absolute Alcohol	10 cubic centimètres (c.c.)		

Aqueous solution of methylene blue:—

Methylene Blue	2 grammes	Distilled Water	85 c.c.
Absolute Alcohol	15 c.c.		

Löffler's methylene blue:—

Concentrated alcoholic solution of Methylene Blue	30 c.c.	Solution of Caustic Potash in distilled water (1 in 10,000)	100 c.c.

Aqueous solution of gentian violet:—

Gentian Violet	2·25 grammes	Distilled Water	100 c.c.

Or the following may be used, except for the colouration of the hanging drop (see preceding volume, page 580).

Gentian Violet	1 gramme	Distilled Water	80 c.c.
Absolute Alcohol	20 c.c.		

As gentian violet is a basic dye, the washing of cover-glasses after staining with an aqueous solution of this re-agent, is best carried out in tap water, which is naturally slightly alkaline; distilled water extracts more of the dye, and acidulated water yet more. Better than tap water, however, is a solution of caustic potash in distilled water, 1 in 10,000, the use of which for this purpose was devised by Mr. Arthur Mead. The cover-glasses, after staining, are passed through two saucers of the potash solution, and finally through tap water.

A series of comparative trials has shown that the violet is in this way rendered more intense, and the result of the stain more certain. Or the potash, as suggested by the author, may be added to the dye. The following formula of Mr. Mead's gives excellent results, the specimens being washed in tap water after the use of the stain.

Potassic gentian violet:—

Gentian Violet	1 gramme	Caustic Potash Solution in distilled water (1 in 10,000)	100 c.c.
Absolute Alcohol	20 c.c.		

Concentrated alcoholic solution of gentian violet:—

Gentian Violet	25 grammes	Absolute Alcohol	100 c.c.

Gram's method.

(1,) *Aniline gentian violet :—*

Concentrated alcoholic solution of Gentian Violet	11 c.c.	Aniline Water	100 c.c.

The solution is to be freshly made, and filtered before use. Aniline water is prepared by well shaking 4 c.c. of pure aniline with 100 c.c. of distilled water, and twice filtering through paper first moistened with distilled water.

(2,) *Iodine solution :—*

Iodine	1 gramme	Distilled Water	300 c.c.
Iodide of Potassium	2 ,,		

The preparation of distilled water for the purpose of making cover-glass films (described in the previous volume), may be expeditiously carried out by allowing the steam of a beaker or kettle to condense on the clean under side of a flat capsule, partially filled with cold water, and afterwards quickly inverting the latter, when ample will be found on the side brought uppermost.

Corrigenda to the Article in the preceding volume (*page* 580). Under "Colouration of the hanging drop," the sentence should read as follows : "The best staining fluid is a dilute solution of gentian violet, made by adding ·5 c.c. of an aqueous solution of gentian violet (gentian violet 2·25 grammes, distilled water 100 c.c.) to 10 cubic centimètres of distilled water."

In the title of *Plate XXIII* (preceding volume) the hyphen between *yeast* and *causing* should be omitted.

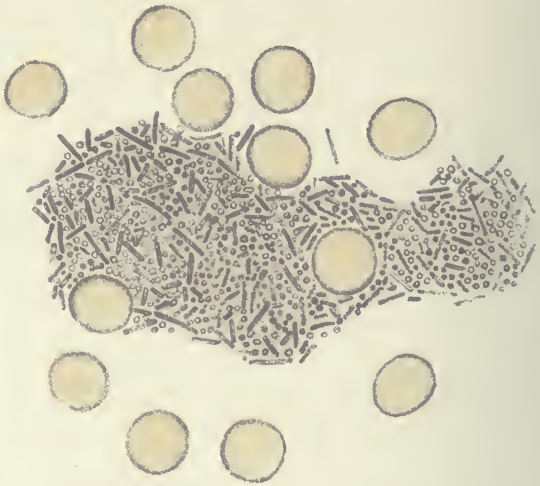


Fig. 1.—Widal's Reaction.

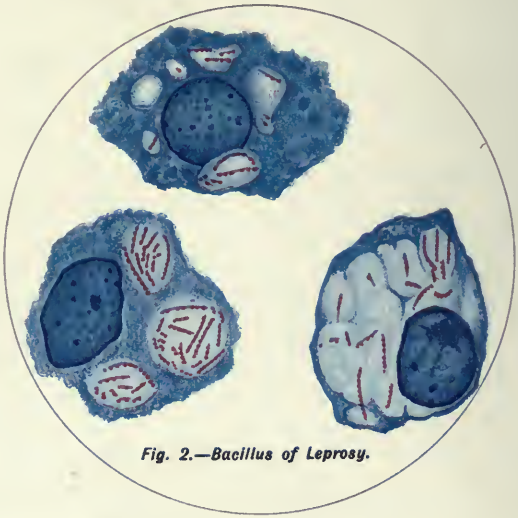


Fig. 2.—Bacillus of Leprosy.

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Plate XVIII.

Fig. 1.—WIDAL'S REACTION.

This figure is given to show the bacillary clumps which form when the blood serum of a patient suffering from typhoid fever is added to a living broth culture of the typhoid bacillus, the phenomenon being known as Widal's reaction.

In the case of the preparation figured, 1 part of blood serum was added to 19 of a twenty-four hours' (incubated) broth culture. The blood had been collected in a pipette and allowed to clot; a certain number of red corpuscles are admixed with the serum.

The clumping or agglutination of the bacillus is readily observable under 1-6th objective, though the clump represented was drawn under 1-12th oil immersion, and is magnified about 1000 times.

The method of carrying out the test for the diagnosis of typhoid fever is fully given in the text.

Fig. 2.—BACILLUS OF LEPROSY.

The figure represents three highly vacuolated endothelial cells from a lymphatic gland secondarily infected in a case of leprosy of the tongue. The cells occurred along with others of similar character in irregular groups scattered throughout the gland. The notable vacuolation (regularly seen in such "leprous cells") is possibly due to an abundant formation of digestive fluid secreted by the cell that it may destroy and utilise the bacilli. Highly vacuolated cells at times hold extremely few bacilli, possibly as a result of such a process of destruction. The bacilli mostly lie in the septa between or around the vacuoles, though when the vacuole is not viewed in strict optical section they appear to lie within.

The leprosy bacilli are slender, straight, or slightly curved rods, very uniform in breadth, and fairly so in length, and they closely correspond in size and general character with those of tuberculosis, as the latter are met with, *e.g.*, in phthisical sputum. They present a markedly beaded appearance arising from protoplasmic segmentation. They give, again, the same common staining reaction, in this resembling, moreover, the bacillus of smegma; *i.e.*, after being dyed with carbol fuchsine the bacilli resist decolorisation in a 25 per cent. mixture of sulphuric acid in distilled water. The smegma bacillus is not infrequently present in the urine of both sexes, and may be mistaken for that of tubercle. This error can be avoided by examining the urine drawn off by catheter, the smegma bacillus being in this way excluded. And to select one of many differential staining methods, though dyed with carbol fuchsine, the colour of the smegma bacillus is discharged in a mixture of 20 per cent. nitric acid in alcohol, whilst that of the tubercle bacillus is retained. For the reliable examination of urine a centrifuge is indispensable.

The sections of the leprous gland were stained for fifteen minutes (without heat) in carbol fuchsine, passed through 25 per cent. sulphuric acid, washed in water and counterstained for five seconds in a 1 per cent. aqueous solution of methyl blue, after which they were passed through water, absolute alcohol, oil of cloves, and mounted, finally, in a solution of Canada balsam in xylol. For the counterstaining of tissue *methyl* not methylene blue, is to be used; the latter is almost entirely removed by the subsequent immersion of the section in alcohol. The counterstaining of cover-glass films of phthisical sputum is satisfactorily carried out by means of an aqueous solution of methylene blue. (See the previous volume.)

The Leprosy bacilli are not in all cases located within the cells of a tissue: they may lie in a ground substance or glœa occupying the lymph spaces.

Fig. 1.—Diphtheria Bacillus (typical form).

Fig. 2.—Diphtheria Bacillus (atypical).

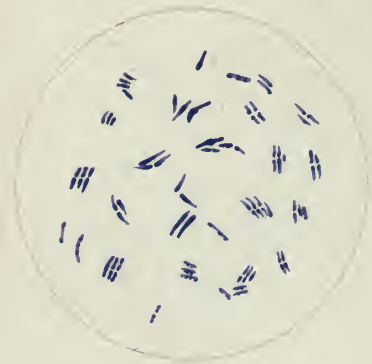

Fig. 3.—Diphtheria Bacillus (atypical).

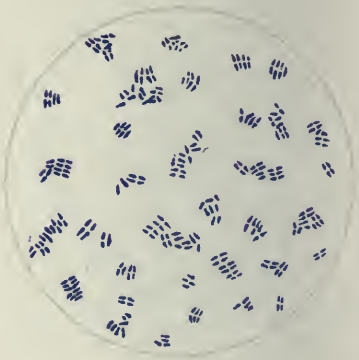

Fig. 4.—Hoffmann's Pseudo-Diphtheria Bacillus.

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Plate XIX.

BACILLUS OF DIPHTHERIA.

Fig. 1.—THE "TYPICAL," "KLEBS-LÖFFLER," OR "LONG" DIPHTHERIA BACILLUS.

From a culture on Löffler's blood-serum of twenty-two hours' age, incubated at 37° C. The growth was the third sub-culture of the original from the throat. Stained with Löffler's methylene blue, washed in tap water. The case from which the culture was raised concerned a boy (P. R.), admitted to St. Thomas's Hospital, October 18th, 1897, with inflamed throat; there was much membrane on the tonsils, and in the larynx as evidenced by the stridor and retraction of the chest. Tracheotomy was performed, the tube being removed on the fourth day. Four thousand units of diphtheria antitoxin were administered by subcutaneous injection. Until the early part of November progress had been favourable; on November 24th palatal paralysis was noted, the voice acquiring a nasal twang; this slowly improved. The knee-jerks were absent on November 29th, and still absent on December 24th, but the patient could at that date swallow without regurgitation.

The Bacilli are straight or slightly curved rods of varying length and thickness often set in parallel groups of two or more. The designation of "long" implies that many, not all, are of conspicuous length. One end (or both) may be enlarged or bulbous; in the absence of this, the ends are abruptly rounded without tapering. The bacilli present a notable segmentation of protoplasm, which is divided into deeply stained parts; these, which may be far from equidistant, are in some instances flattened across the long axis of the rod, in others, spherical. The extremities of the bacillus correspond with terminal segments. In some of the shorter rods only terminal parts are dyed—end or polar staining.

The primary forms appear as short uniformly stained bacilli, with ends slightly smaller than the rest of the rod; these undergo transverse division, before the completion of which they appear as diplo-bacilli with the opposed ends flattened. Segmentation rapidly takes place, the shortest forms exhibiting only end-staining; the latter are distinguishable from true diplo-bacilli by the absence of tapering free ends and the length of unstained centre. These forms of the diphtheria bacillus are classed as "typical," since they are commonly associated with the typical, more virulent examples of diphtheria; yet not invariably so, for not only may "atypical" forms be highly virulent, but similar "typical" or "long" forms may possess little pathogenicity (as tested upon the guinea-pig), and occur in cases which clinically present no other features than those of sore throat, unaccompanied even with any marked malaise.

Fig. 2.—"ATYPICAL" OR "SHORT" DIPHTHERIA BACILLI.

A culture of thirteen hours' growth on Löffler's blood-serum, carried on from one (Viennese) of the virulent strains in use at the Conjoint Laboratories of the Royal College of Physicians and Surgeons, London, for the preparation of toxin employed in the production of diphtheria antitoxin from the horse. Besides a few segmented forms are others of an "atypical" kind, commonly ranged in parallel collections of two or more; these mostly taper off at the extremities, presenting a deeply stained centre, which is usually divided by an uncoloured narrow line indicative of an incompleted transverse fission, the elements being double, or diplo-bacilli. Beyond the deeply stained centre the bacillus is of a lighter blue. Here and there a pyriform element occurs, more deeply stained towards the larger end; or short deeply stained spindles.

Fig. 3.—A SECOND EXAMPLE OF THE "ATYPICAL" OR "SHORT" DIPHTHERIA BACILLUS.

From a virulent case of the disease. Diplo-bacilli in parallel groups; beyond their opposed deeply stained central ends the component elements taper off and are but lightly coloured. Pear-shaped forms are present, and a few which exhibit polar and segmented staining. From its staining reaction the form has been named the "sheath" variety by Dr. J. Eyre, to whom the author is indebted for the preparation from which the figure has been drawn. The "sheath" variety occurs, as a rule, in the milder types of diphtheria. It is but rarely met with, and is not strictly stable; if grown for some days upon alkaline potato and again sown on blood-serum, it acquires the segmented characters of the "typical" form.

Another atypical pathogenic variant has been described of the same form as the above, but staining uniformly and deeply throughout.

Fig. 4.—HOFMANN'S BACILLUS.

Culture of twenty-four hours' on agar, incubated at 37° C. Stained with Löffler's blue, washed in tap water. The culture was carried on from one isolated by Dr. E. A. Peters, to whom the author is indebted for a sample of the strain. Diplo-bacilli, occurring in parallel groups of two or more. The elements composing a single diplo-bacillus are short, squat, wedge-shaped, with opposed bases, and stain uniformly throughout. They are markedly shorter than the atypical or short varieties of the diphtheria bacillus, and relatively broader at their bases. In older cultures segmented and irregular involution forms may be encountered. Hofmann's bacillus (sometimes named a pseudo-diphtheria bacillus) is not found as a cause of true diphtheria in the human subject. Hence, though isolated in many forms of sore throat, such lesions are not to be regarded as diphtheritic. The bacillus, may, however, be associated with the "typical," "Klebs-Löffler," or "long" diphtheria bacilli in diphtheritic affections, but under such circumstances its presence may be regarded as of secondary significance.

Fig. 1.—Proteus Vulgaris.,

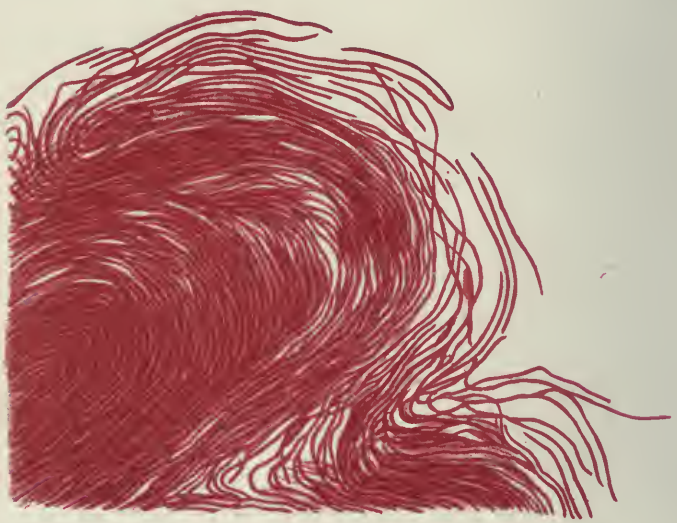

Fig. 2.—Proteus Vulgaris (the early filamentous phase).

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Plate XX.

BACILLUS PROTEUS VULGARIS.

This organism is introduced as one of the most common of those causing putrefaction, though different varieties of the bacillus coli are almost as ubiquitous.

Although by some, putrefactive organisms are not classed as pathogenic, because they are not the causes of any process differentiated clinically as a disease, they are pathogenic in the wider and truer sense, since putrefaction plays so important a part in the sepsis of wounds and in the toxæmia accompanying cancrum oris, the ulceration of extensive carcinomata of the alimentary and respiratory passages and conditions of a like kind.

Fig 2.

An "Impression preparation" from a gelatin culture of eighteen hours.

Carbol fuchsine, washed in water weakly acidulated with acetic acid. The culture was made by streaking a Petri capsule (after the jelly poured into it had set) with a straight platinum wire infected from a pure culture of the organism. The impression preparation is obtained by allowing a cover-glass to fall upon some part of the streak of growth and then gently raising it by one edge, when the line of culture is brought away adhering to the under side of the glass; the specimen is then stained in the usual way.

The preparation shows the early or filamentous stage in the growth of the bacillus, which is highly pleomorphic, whence its name of Proteus.

The streak (of which one edge is depicted) consists of long, closely-matted, unbranched filaments arranged in strands. As seen at the free margin, some are sharply re-curved upon themselves.

The organism figured was isolated from macerating muscle, the actual material being beef steak, which was minced and incubated in distilled water at 37° C.

Fig. 1.

An impression preparation of a similar streak culture at a later stage when the gelatin was in process of liquefaction. Carbol fuchsine, washed in acidulated water.

The filaments have mostly divided into short rods, often constricted across the middle or in pairs end-to-end as diplo-bacilli. Here and there longer rods occur and filamentous forms, but the longer of the latter have not been introduced.

Fig. 1.—Bacillus of Glanders.

Fig. 2.—Bacillus Tuberculosis, in a pure culture.

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Plate XXI.

Fig. 1.—BACILLUS OF GLANDERS (BACILLUS MALLEI).

From the growing edge of a culture on glycerin-agar of three days' growth, incubated at 37°C.

Carbol fuchsine, washed in diluted acetic acid. The culture was made from a potato growth of characteristic honey-yellow colour, raised from a glandered horse, the potato culture being the second remove only from the original.

The bacillus (which is very difficult to stain with certainty in the tissues) may be stained in cover-glass films with aqueous solution of gentian violet (ten minutes), followed by washing in 1 in 10,000 caustic potash solution and afterwards tap water; or, by means of alcoholic solution of gentian violet for one hour, rapidly washed in water. The action of Löffler's blue, for cover-glass films is uncertain.

Somewhat slender rods of varying length and thickness, straight or slightly curved, the shortest appearing as ovals, the longer as unsegmented filaments which are commonly less deeply stained; some of the filaments present were longer than those figured. Here and there end-to-end pairs are met with. In some of the rods one or more minute, sharply-defined, circular vacuoles are present. A few of the bacilli present a moniliform outline, but none any distinct segmentation of protoplasm or "beading," as they may in the tissues.

The organisms tend to cohere in clusters, some of the smaller of which are selected in the illustration.

Fig. 2.—TUBERCLE BACILLUS.

Pure culture on Löffler's blood-serum, incubated at 37° C., carried on from a growth on glycerin-agar which was raised from the lymphatic gland of a guinea pig, inoculated from a case of tubercular pleurisy in the human subject.

The growth on the serum progressed slowly and took the form of a thin, white film in which were sparsely scattered, thicker, more opaque areas.

Stained with carbol fuchsine warmed on the cover-glass, and treated with 25 per cent. sulphuric acid in a watch-glass. If used in the cold, the dye should be allowed fifteen minutes.

The culture consists of straight and slightly-curved rods with rounded ends, and of varying length, the shortest hardly more than oval. The bacilli tend to occur in small parallel groups arranged in irregular lines, or set at various angles to one another in a way suggestive of Chinese characters. They exhibit none of the segmentation, or "beading," so commonly presented in phthisical sputum (see Plate XXX in the previous volume).

Branching Forms.—On the right are shown, from the same culture, two examples of the filamentous forms, which recall the branched mycelium of the hyphal-fungi or moulds.

The colouration of the bacilli (stained by Gram's method) is almost limited to the minute spherical granules lying within the bacillary cell.

Branching forms are at times met with in phthisical sputum.

Plate XXII.

Fig. 1.—BACILLUS OF RHINOSCLEROMA.

From a streak culture on agar, of forty-eight hours' growth, incubated at 37° C.

Carbol fuchsine, washed in dilute acetic acid. The figure shows a group of bacilli united into a zoöglœa by an abundant ground substance which is faintly stained with the dye. The micro-organism consists of spherical elements occurring singly, but most frequently in pairs or short chains. Rod forms may also be met with.

As showing the essential similarity of ground-substance, or glœa, and that which constitutes a bacterial capsule, it will be noticed that whilst at the periphery, where active multiplication is proceeding, the bacilli lie closely embedded in this substance, more centrally, where the latter has accumulated in larger amount, it has parted into areas appertaining to definite groups, showing the divided share which the organisms have taken in its production. At the lower end of the figure, near its middle, there is a diplo-bacillus quite isolated from the neighbouring mass, and furnished with a capsule proper to itself.

Fig. 2.—STREPTOTHRIX ACTINOMYCES.

Broth culture, of seven days' age, incubated at 37° C.

In broth the growth occurs as small spherical colonies, which are best examined by being teased out on a cover-glass after having been washed in distilled water. The preparation is allowed to dry and may be then stained with carbol fuchsine or aqueous solution of gentian violet; in the former case the subsequent washing is carried out with acidulated water, in the latter with tap water, or what is better, with a 1 in 10,000 solution of caustic potash, followed by tap water.

The culture consists solely of long, interlacing, slightly wavy filaments which give off lateral shoots. The branches vary in length according to their age, taking, on their first appearance, the form of minute excrescences.

Cultures of the streptothrix Maduræ (the cause of mycetoma or Madura disease) are indistinguishable in microscopic features from streptothrix actinomyces.

As found in the tissues of oxen affected with actinomycosis, the filaments, as a rule, terminate in clubbed enlargements, and radiate from a central mass In the lesions of the human subject the clubs are by no means regularly present, nor is a radial disposition of the filaments always obvious.

Such differences possibly indicate that the streptothrix causing the disease known clinically as actinomycosis in man and the lower animals is not always identical, the existence of pathogenic varieties (which have received special names) having been demonstrated by means of artificial cultures.

Owing to its anomalies, the classification of this group of organisms has been long a subject of controversy, which has been terminated, at least for a while, by raising it into a distinct class of fungi under the name of streptothriciæ.

The group includes non-pathogenic as well as pathogenic forms, and comprises micro-organisms which, like hyphal-fungi or moulds, form a mycelium of branching filaments originating from spherical spores; certain of the filaments (like the aërial hyphæ of moulds) rise into the air from the mycelium and produce at their extremities chains of spherical elements comparable to spores, though of a different morphological nature from, *e.g.*, the endo-spores of bacilli.

PLATE XXII.

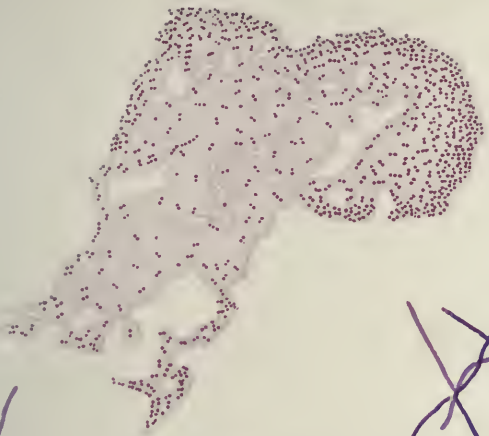

Fig. 1.—Bacillus of Rhinoscleroma.

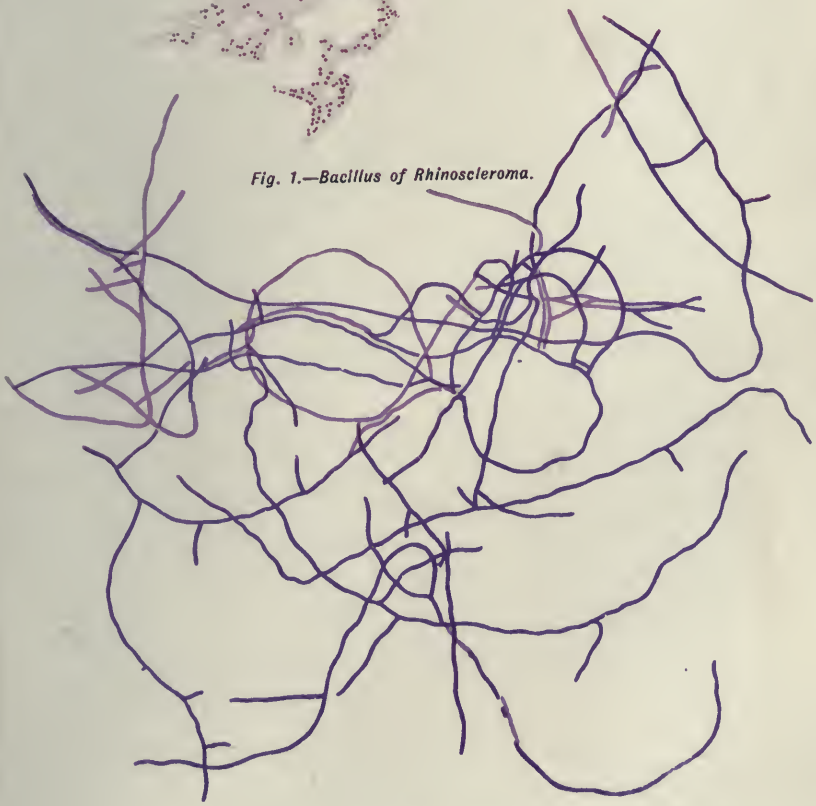

Fig. 2.—Streptothrix Actinomyces.

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Plate XXIII.

Fig. 1.—Streptococcus pyogenes.

Broth culture of forty-eight hours' growth, incubated at 37° C., from the pus of one of the subcutaneous abscesses which arose during the course of puerperal septicæmia.

Carbol fuchsine, washed in dilute acetic acid. The chain on the right hand side of the figure is added from a cover-glass preparation of the pus of an axillary abscess which showed large numbers of such without any staphylococci. The micro-organism, which is best studied in broth cultures, presents itself as micrococci arranged in chains of varying length. The component elements are almost everywhere flattened, and occur in pairs, showing that active division is in progress throughout the chain. Here and there elements occur which are oval or elongated in the direction of the chain, and all transitions may be traced between such and the pairs of flattened cocci resulting from their sub-division. Wedge-shaped forms may be met with in adaptation to the pressure arising at sudden bends. At times division of a component coccus takes place in the long axis of the chain, as may be seen in that on the right hand side. This mode of fission may become a source of lateral branching should the process of sub-division continue in parallel planes.

At times certain of the cocci will divide cross-wise into four. Some of the chains are very slender, and different parts of the same chain may present marked differences in respect of breadth or thickness.

Fig. 2.—Bacillus of quarter-evil, or symptomatic anthrax.

Cultivation in 2 per cent. glucose broth, incubated at 37° C., of twenty-four hours' growth.

The organism, like those of malignant œdema and tetanus, is a strict anaërobe, *i.e.*, it grows only in the absence of gaseous oxygen. The culture was grown in an atmosphere of nitrogen by Buchner's method of removing the atmospheric oxygen with pyrogallate of potassium. Carbol fuchsine, washed in water weakly acidulated with acetic acid.

The growth at this stage consists of rods of varying length produced either into simple or segmented filaments. The elements composing the filaments are by no means of regular length, in consequence of a continuance of their sub-division.

The breadth is less than that of the anthrax bacillus, and the apposed ends of the segments, in place of being squarely cut (as in the latter; see preceding volume), are rounded.

It must be here observed, however, that in the bacillus of anthrax squareness of the apposed ends may be as wanting as in either malignant œdema or quarter-evil.

At the end of twenty-four hours few sporulating rods were present in the culture.

By the third day abundant spore-formation had taken place, as is shown in Fig. 3. The preparation consists of straight rods, large numbers of which are sporing. Pairs of rods joined end-to-end are not infrequent. The spore forms, as a rule, at one of the extremities of the rod, which it considerably exceeds in diameter so as to give rise to a drum-stick appearance, much as in the tetanus bacillus, except that the spores are oval in place of being spherical.

The formation of the spore is first evidenced by a swelling of the end of the rod: in this enlargement the unstained spore subsequently appears.

This organism is closely like that of malignant œdema both in its cultural characters and its morphology. In the bacillus of malignant œdema, however, the spores, in place of being terminal, form towards the centre of the rods. The bacillus of quarter-evil has not yet been identified as a cause of disease in man; that of malignant œdema not infrequently has.

Stain: Aqueous solution of gentian violet, washed in 1 in 10,000 solution of caustic potash, followed by tap-water.

PLATE XXIII

Fig. 1.—Streptococcus Pyogenes.

Fig. 2.—Bacillus of Quarter Evil.

Fig. 3.—Bacillus of Quarter Evil (sporing stage).

BOOTT & FERGUSON, SC.

Plate XXIV

Fig. 1.—DIPLOCOCCUS PNEUMONIÆ.

Culture on Löffler's blood-serum, of twenty-four hours' age, incubated at 37° C.

Stained by Gram's method. The cover-glasses having been prepared in the usual way, are immersed in a watch-glass of aniline gentian violet for ten minutes, passed through water, and then placed in Gram's iodine solution for five minutes, after which they are washed in alcohol until no further colour comes away; they are then placed on edge to dry, and finally mounted in xylol balsam.

The cocci occur singly and in pairs, but mostly grouped in rows of varying length. In the particular strain shown (which was isolated by Dr. J. W. Washbourn and Dr. J. Eyre, and found highly virulent when tested upon animals) the chain formation is unusually pronounced, the organism being a streptococcal variant.

Considerably longer chains than the longest depicted were present. The cocci composing the chains are actively subdividing, as evidenced by the flattened pairs of which they so largely consist. Here and there unusually large elements occur in which sub-division has not yet taken place.

In pure cultures the organism is unprovided with the capsule which it presents when studied in the sputum and pulmonary tissue in cases of acute pneumonia.

Fig. 2.

A preparation of the heart-blood of a rabbit experimentally infected with the foregoing strain of diplococcus pneumoniæ by intra-peritoneal injection. All the organisms, whether single cocci or pairs, are surrounded with a thick capsule. The specimen was dyed with the following modification of dahlia stain devised by Dr. A. MacConkey: Dahlia, ·5 grms.; methyl green (oo crystal), 1·5 grms.; saturated alcoholic solution of fuchsine, 10 c.cm.; distilled water to 200 c.cm.

The dahlia and methyl green are rubbed up in a mortar with part of the water until dissolved, the fuchsine is then added, and, finally, the rest of the water. The cover-glass, after the dye is placed upon it, is held over a low flame until the steam rises, placed aside for five minutes, washed, allowed to dry, and, finally, mounted in xylol balsam.

The appearance of the capsule under the conditions of the experiment and in the human tissues possibly marks a defensive formation on the part of the bacterium to protect it against the action of the cells and body fluids (Louis Jenner).

Fig. 3.—TETANUS BACILLUS.

Culture in glucose broth, grown anaërobically at 37° C.; stained with gentian violet.

Slender rods and simple filaments. Most of the rods have sporulated, the spore being of spherical form and situated at one end of the rod which, in consequence, acquires the appearance of a drum-stick. Branching filaments may be met with, as in the case of the tubercle bacillus.

PLATE XXIV.

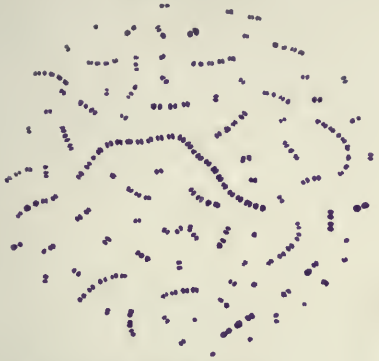


Fig. 1.—Diplococcus Pneumoniæ (pure culture, encapsulated).

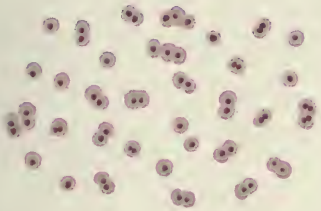


Fig. 2.—Diplococcus Pneumoniæ (capsulated condition).

Fig. 3.—Bacillus of Tetanus.

ABBOTT & FERGUSON, EDINR.

PLATE XXV.

FIG. 1.—BACILLUS PNEUMONIÆ (FRIEDLÄNDER).

From a streak culture on agar, of twenty-four hours' growth, incubated at 37°C.

Stained with aqueous solution of gentian violet, washed in caustic potash solution (1 part to 10,000), followed by tap-water.

Thick rods of varying length, the shortest appearing as ovals or even as coccus forms or spheres. Pairs of oval (or spherical) elements, end-to-end are not uncommon. In some of the shorter forms one or more circular vacuoles are present.

In pure cultures the micro-organism has no capsule such as it presents when found in the sputum or lung in acute pneumonia.

It is not stained by Gram's method, and in this contrasts with the diplococcus pneumoniæ which is found in other cases of acute pneumonia, in the sputum and pulmonary tissue, etc.

FIG. 2.

SPIRILLUM OF ASIATIC CHOLERA (KOCH'S "COMMA BACILLUS").

From a streak culture on agar, of twenty-four hours' growth, incubated at 37° C.

Aqueous solution of gentian violet, washed in 1 in 10,000 caustic potash solution, followed by tap-water.

A group of typical, slighty-curved rods is shown at the lowest part of the figure; others are selected to show varieties of form. The rods vary in length as well as in thickness. Some are sharply curved like the letter C; others are curved in opposite directions and present two bends like a shallow S.

Some of the bacilli exhibit one or two circular vacuoles; the vacuole may occupy one end of the rod, which may be slightly enlarged. Although commonly rounded, the extremities of the bacilli may be bluntly pointed. In addition to the simple, curved rods, there are longer filamentous, undulatory forms of different lengths; these present no traces of a segmented or composite structure. The proper spirillar or twisted feature of the filamentous forms is appreciable only in a hanging drop made, *e.g.*, from a broth culture. In such a drop even the longest forms are twisted, as appears by the alternation of parts within and out of focus. In dried preparations the curves are reduced to a single plane, the filament becoming undulatory or serpentine without spiral twist.

Fig. 1.—Bacillus Pneumoniæ.—FRIEDLANDER.

Fig. 2.—Spirillum of Asiatic Cholera ("Comma Bacillus").

PART III.—MISCELLANEOUS.

Legal Decisions

AFFECTING MEDICAL MEN AND THE PUBLIC HEALTH.

By J. E. COONEY, L.R.C.P., D.P.H.,

Late Medical Officer of Health of Fulham, London; of the Middle Temple, Central Criminal Court, and of the South-Eastern Circuit, Barrister-at-Law.

ADULTERATION OF FOOD.

PARKER *v.* ALDER (Divisional Court), 62 J.P. 772.

Sale of Food and Drugs—Adulteration—Contract for Supply of Milk—Adulteration in course of Transit—Liability of Consignee for acts of others than his servants—Sale of Food and Drugs Acts, 1875, s. 6—*Sale of Food and Drugs Act Amendment Act*, 1879, s. 3.—Case stated by a metropolitan police magistrate.

Held (Lord Russell of Killowen C.J., and Wills J.), That a vendor of milk may be convicted of the offence of selling to the prejudice of the purchaser, milk not of the nature, substance and quality demanded by the purchaser, although the adulteration was not the act of vendor or his servants or agents, but was the act of a stranger without the knowledge or consent of the vendor, his servants or agents, during the transit of the milk to the purchaser, and whilst the milk was not under the control of the vendor or his servants, but of a railway company acting as carriers for the vendor. *Appeal allowed.*

PETCHLEY *v.* TAYLOR (Divisional Court), 62 J.P. 360.

Sale of Foods and Drugs—Condensed Milk—Separated Milk—Skimmed Milk—Sale to the Prejudice of the Purchaser—Sufficient Disclosure of Adulteration—Sale of Food and Drugs Act, 1875, s. 9.—Case stated by a metropolitan police magistrate. The appellant was summoned for selling a tin of condensed milk, known as the "Cup Brand," for the sum of 2½d., which milk had 97 per cent. of the original fat abstracted. On the tin was affixed a label, having printed thereon in red letters, "This tin contains skimmed milk." It was proved that the sample was "separated milk," which term designates milk from which practically the whole of the fat is abstracted by a separator, and that the "skimmed milk" is applied only when a portion of the fat is removed by skimming the surface of the milk. Also that separated milk as a diet would be injurious to the health of

a child. It was contended for the appellant that proper and sufficient notice of the alteration had been given by the label; that separation was merely the development of the process of skimming; that the word "separated" conveyed no meaning, but the word "skimmed" was well understood by those in the habit of purchasing cheap brands of condensed milk. The magistrates convicted the appellant, and reserved the point of law as to sufficient disclosure for the Court to determine.

Held (Wills J. and Kennedy J.), That on a demand for purchase of condensed milk, a label fixed round a tin of condensed milk, having printed thereon *(inter alia)* in red letters, the words, "This tin contains skimmed milk," whereas the tin, in fact, contained separated milk, from which 97 per cent. of the original fat had been abstracted, while it was proved as a fact that no more than 63 per cent. of the original fat could be abstracted by the process of skimming, does not give proper and sufficient notice of the alteration in the milk.

Jones v. Davies, 57 J.P. 808, *discussed.* *Appeal dismissed.*

BAKEHOUSES.

SCHWERZERHOF *v.* WILKINS (Divisional Court) 1 Q.B. (1898) 640, 62 J.P. 247.

Bakehouse (underground)—Premises vacant at Commencement of Act—Factory and Workshop Act, 1895, s. 27, sub. s. 3.—Case stated by a metropolitan magistrate. By sec. 27, sub. s. 3 of the Factory and Workshop Act, 1895, "A place underground shall not be used as a bakehouse unless it is so used at the commencement of this Act." It appeared that the premises in question had been fitted up with an underground bakehouse in 1879, and had been occupied and used as baker's premises down to October, 1895, when the tenant left. The owner then put the premises into repair, and the work was completed about Christmas, 1895. The appellant became the tenant of the premises in February, 1896, and at once commenced to use the underground bakehouse, and continued to do so to 15th Oct., 1897. It was contended for the appellant that the premises were used as a bakehouse within the meaning of the Act at the time when the Act came into operation, 1st January, 1896. The magistrate, however, held that the place was not used as a bakehouse on 1st January, 1896, and convicted the appellant, but stated this case for the opinion of the Court.

Held (Wright J. and Darling J.), That the premises were used as a bakehouse at the commencement of the Act. *Appeal allowed.*

CESSPOOLS.

SIMMONS *v.* MALLING RURAL DISTRICT COUNCIL (Divisional Court), 2 Q.B. (1897) 433.

Cesspools—Local Authority—Powers—By-Laws—Rural Sanitary Authority—Cesspools in connection with Buildings—Applications of By-Laws to Old Buildings—Public Health Act, 1875, s. 157—*Public*

Health Acts Amendment Act, 1890, s. 23.—Case stated by justices of Kent. The appellant was summoned to answer an information charging him with having unlawfully constructed a cesspool in connection with a building at a distance of less than fifty feet from a dwelling-house, contrary to a by-law of the respondents, and was convicted, but the question as to whether the by-law, as contended by the appellant, was *ultra vires*, unreasonable, and void, as also the question whether such by-laws extend to old buildings in existence before the framing of such by-laws, was left for the Court to decide.

Held (Wright J. and Bruce J.), That the power of a rural sanitary authority, under s. 157 of the Public Health Act, 1875, as amended and extended to rural sanitary authorities by s. 23 of the Public Health Acts Amendment Act, 1890, to make by-laws with respect to (*inter alia*) cesspools in connection with buildings, extends to old buildings in existence before the making of the by-law, as well as to new buildings. A by-law of a rural sanitary authority, providing that "Every person who shall construct a cesspool in connection with a building, shall construct such cesspool at a distance of fifty feet at least from a dwelling-house," is not unreasonable merely by reason of the fact that in a particular case it is not possible to construct a cesspool at the prescribed distance. *Appeal dismissed.*

BUTTON *v.* TOTTENHAM URBAN COUNCIL (Divisional Court), 62 J.P. 423.

Cesspools connected by Conduit—Sewer—By-Law—Public Health Act, 1875, s. 157.—Case stated by the justices of Middlesex, sitting at Edmonton. The appellant, the owner of certain houses in Tottenham, for their drainage, there being no sewer within 100 feet of such houses, constructed on his own land a series of cesspools connected together by a conduit, which conveyed the overflow from them to a large cesspool. After some process of separation in the large cesspool, the sewage was disposed of on the appellant's land, and so used by him for the fertilisation thereof. On behalf of the respondents, it was contended that the construction of the conduit was an infringement of their 89th By-law, inasmuch as ready means of access for removal of the contents of the cesspools was not provided, and that such conduit was a sewer within the meaning of the Act. The justices convicted the appellant, and left the points of law to the Court to determine.

Held (Wills J. and Kennedy J.), That, the construction, by the owner of certain houses, for their drainage on his own land, of a series of cesspools connected together by a conduit, which conveyed the overflow from them to a large cesspool, is not a contravention of a by-law forbidding the construction of any cesspool, so that it should have by drain or otherwise any outlet or means of communication with any sewer.

Mader v. West Cowes Local Board (1892) 3 Ch. 218, *followed.* *Appeal allowed.*

COWSHEDS.

BAKER *v.* WILLIAMS (Divisional Court), 1 Q.B. (1898) 23. 62 J.P. 21.

Cowsheds—Contagious Diseases (Animals) Act, 1878, s. 34—*Dairies, Cowsheds, and Milkshops Order*, 1885, s. 13—*Power of Local Authority to regulate Air-space.*—Special case, stated by the justices of Southport. The appellant, a cow-keeper, was convicted on April 20th, 1897, for having caused a greater number of cattle to be at one time kept in a building used as a cowshed than admitted of the provision of 800 cubic feet of air-space for each cow. By sec. 34 of the Contagious Diseases (Animals) Act, 1878, the Privy Council is empowered to make orders authorising a local authoritiy to make regulations for the ventilation, etc., of dairies and cowsheds, and in accordance with provision made an order in 1885 providing for the occupation of cowsheds as to the ventilation, including air-space, to the reasonable satisfaction of the local authority, and empowered such authorities to make regulations for regulating the ventilation, etc., of cowsheds. Acting on this, the Urban Sanitary Authority of Southport made a regulation prescribing 800 cubic feet of free air-space for each cow. It was contended for the appellant that the regulation was *ultra vires* and void, as neither the Act nor the Order in Council gave any power to the local authority to make regulations respecting air-space. Further, that ventilation and air-space are entirely different things, and this difference is recognised by the Order in Council.

Held (Wright J. and Kennedy J.), The power given by the Contagious Diseases (Animals) Act, 1878, and the Dairies, Cowsheds, and Milkshops Order, 1885, to local authorities to make regulations for prescribing and regulating the ventilation of dairies and cowsheds, permits a local authority to make regulations respecting air-space in such places. *Appeal dismissed.*

DEATH CERTIFICATION.

REG. *v.* BLEWITT (West Ham Police Court, 21st March, 1898). 62 J.P. 202.

Refusal to give Death Certificate— Births and Deaths Registration Act, 1874, ss. 20, 39.—Mr. Patrick Lyons Blewitt, L.S.A. Lond., of 126, Barking Road, was summoned at the instance of Mr. G. E. Hilleary, coroner for West Ham, for failing, without reasonable excuse, to sign and give to one John Desborough the elder, a certificate of death as to John Desborough, aged two months.

The defendant did not appear, and was not represented.

It appeared that the defendant attended the child, who died on the 2nd Dec., 1897, but refused to give the certificate till he was paid the sum of 12s. owing to him. The coroner held an inquest, and the defendant in his evidence stated that the child died from syncope, and that it had been suffering from debility from birth.

Mr. Ernest Baggallay, stipendiary magistrate, imposed a fine of £2 and costs—£5 9s. 6d. in all, distress, or 21 days.

DYING DECLARATIONS—MURDER.

REG. *v.* WHITMARSH (Central Criminal Court, Sept. 19, 20, 21, 1898). 62 J.P. 680.

Dying Declarations — Admissibility — Evidence — Murder.—Upon an indictment for the murder of a woman, who died as the result of the prisoner having used certain instruments or other means upon her with the intention of procuring her miscarriage, it was shown that on the 29th of June, an inspector of police had seen her at the Charing Cross Hospital. He asked her questions, and from the answers she gave he wrote down a statement. The woman then signed the statement. On the 7th of July the woman appeared to be in a dying condition, and to be aware of it. She said she feared she must die, and asked to see her mother and a clergyman. The doctor told her he had given up all hope, and that she might not live to see her mother. A police magistrate came shortly afterwards, and read over to her the statement she had made on the 29th of June, and he affixed a note to it saying, "This statement was read over to Alice Bayley by me, and is referred to in her dying declaration," and signed it.

Held (Darling J.), That, though this statement might be admissible, it had better not be admitted in evidence.

On the same day the woman had also made a statement to the magistrate, of which he took notes, but before this statement was completed, she became exhausted. The magistrate then took the statement of the 29th of June, repeated portions of it to her in his own words, wrote down such portions, and asked her if it was correct. He then read the whole statement to her, and she signed it. The statement commenced with, "Having the fear of death before me, and being without hope of recovery,"—and concluded with the words, "And the statement I made on the 29th of June, and have now heard read over, is true."

Held (Darling J.), This statement was admissible as a dying declaration.

(The jury being unable to agree as to a verdict, were discharged.)

REG. *v.* WHITMARSH (Central Criminal Court, Oct. 25, 26, 1898). 62 J.P. 711.

Dying Declaration — Admissibility — Evidence — Murder — Death resulting from felonious act — When Manslaughter and not Murder.—A police magistrate visited a woman in hospital for the purpose of taking her dying declaration. The woman began to make a statement, but very soon became exhausted. The magistrate then took a statement she had made some days previously to a police inspector, repeated portions of such statement to her in his own words, wrote down such portions in the form of a narrative, and asked her if it was correct. He then read the whole over to her, and she signed it.

Held (Bigham J.), That it was for the judge to be satisfied that when the woman made the statement, she believed she was dying, and that, the judge being so satisfied, the statement was admissible.

If a man, by the perpetration of a felonious act, brings about the death of a fellow creature, he is guilty of murder, unless when he committed the felonious act the chance of death resulting therefrom was so remote that no reasonable man would have taken it into his consideration. In that case he is not guilty of murder, but only of manslaughter.

Verdict: *Guilty of murder*, with the strongest possible recommendation to mercy. Sentence: Death. (This sentence was subsequently commuted.)

INEBRIATES.

Inebriates Act, 1898 (61 and 62 Vic. c. 60).

Sir M. W. Ridley's Inebriates Act enacts: (1,) That any habitual drunkard admitted by himself to be such or found by the jury so to be may, if he be convicted on indictment of an offence and the Court is satisfied that the offence is committed under the influence of drink, or that drunkenness was a contributing cause of the offence, be ordered by the Court, in addition to, or in substitution for, any other sentence, to be detained in any State or certified inebriate reformatory, the managers of which are willing to receive him; and (2,) That any habitual drunkard who is found drunk in any public place or who commits any of the offences mentioned in the first schedule to the Act, in which drunkenness is an ingredient, after having within twelve months been convicted at least three times of a similar offence, "shall be liable upon conviction on indictment or if he consents to be dealt with summarily, on summary conviction, to be similarly detained in any certified inebriate reformatory."

Sec. 3 of the Habitual Drunkards Act, 1879, gives the definition of a Habitual Drunkard as a person who, not being amenable to any jurisdiction in lunacy, is notwithstanding, by reason of habitual intemperate drinking of intoxicating liquor, at times dangerous to himself or herself, or incapable of managing himself or herself and his or her affairs.

The Secretary of State may establish inebriate reformatories, to be paid for out of moneys provided by Parliament. The Secretary of State on the application of the Council of any county or borough or of any persons whatever, may if satisfied as to the fitness of the reformatory and of the persons proposing to maintain it, certify it as an inebriate reformatory. The Treasury or any Borough or County Council may contribute toward the expenses of a certified reformatory, or the Councils may themselves undertake their establishment and maintenance. The expenses incurred in maintaining any person in either kind of reformatory may be recovered from his estate if it is more than sufficient to maintain his family, if any, through the County Court. The Act also amends the Habitual Drunkards Act, 1879, in many particulars, the principal being that which transfers the licensing powers of the existing "retreats" for the reception of habitual drunkards voluntarily seeking admission to the borough and County

Councils, and extends the period of continuance in retreat from one to two years. This Act came into operation on the 1st of January, 1899, and applies both to Scotland and Ireland.

INQUEST FEES TO MEDICAL MAN.

HORNER *v.* LEWIS (Divisional Court), 62 J.P. 345 (1898).

Coroner's Court—Witness—Medical Practitioner—Fees—Cottage Hospital—Public Hospital—Medical Officer of such Institution—Coroners Act, 1887, s. 22.—Appeal from the County Court judge of Brentwood. The plaintiff, Dr. Charles Julius Horner, was honorary medical officer to the Walthamstow and Wanstead Children's and General Hospital, at Walthamstow, where patients were admitted from certain districts without payment, on a governor's letter, and from neighbouring parishes on the payment of not less than 5s. a week. The plaintiff attended on a child, aged seven months, in the hospital, who died, and an inquest was held on the body, and by order of the coroner made a *post-mortem* examination of the body, and subsequently gave evidence at the inquest. For these services the plaintiff claimed the usual fee of two guineas alleged to be due to him under s. 22 of the Coroners Act. The County Court judge decided against the appellant's claim. Sub. s. 2 of s. 22 of the Coroners Act, 1887, provides that, "When an inquest is held on the body of a person who has died . . . . in a public hospital, in infirmary, or other medical institution, ... whether the same be supported by endowments or voluntary subscriptions, the medical officer whose duty it may have been to attend the deceased person, as medical officer of such institution as aforesaid, shall not be entitled to such fee or remuneration." Two questions therefore arose: (*a*,) Was this cottage hospital a public institution within the meaning of the Act? and (*b*,) Was there any "duty" on the appellant to attend the patients in the hospital? "Duty" must mean legal duty.

Held (Wills J. and Kennedy J.), An honorary medical officer of a cottage hospital primarily reserved for patients, being inhabitants of certain districts, is not entitled to any fee or remuneration for attending an inquest on a patient who dies in such hospital, for giving evidence at such inquest, or for making a *post-mortem* examination by order of the coroner. "Duty" is an obligation of the position of a medical officer, and having accepted that unpaid office, the appellant's duty was to attend on the deceased. *Appeal dismissed.*

MILKSHOPS.

LONDON COUNTY COUNCIL *v.* EDWARDS, (Divisional Court). 2 Q.B. (1898) 75. 62 J.P. 377.

Milkshop—Infectious Disease—Non-removal of Milk—"Building"—Dairies, Cowsheds, and Milkshops Order, 1885.—Case stated by a metropolitan police magistrate. No. 29 of the Regulations of the London County Council as to Dairies, Cowsheds, and Milkshops, provides that every purveyor of milk shall, on any outbreak of infectious

disease within the building or upon the premises in which he keeps milk coming to his knowledge, remove all milk for sale from such building until it has been disinfected. The respondent was charged, upon an information laid by the appellants, for a breach of No. 29 of their said Regulations. The respondent, a purveyor of milk, was tenant of a three-storied building in Vauxhall Walk, each floor of which was adapted for separate occupation, but with a central staircase common to each. He occupied the ground floor for the purpose of his business, sub-let the first floor, and occupied the second floor as a residence for himself and his family. One of his children had scarlet fever in a room on the second floor. The magistrate was of the opinion that each floor was a separate building and separate premises within the meaning of the 28th and 29th of the said Regulations, and that there was, therefore, no outbreak of disease within the building or upon the premises in which the respondent kept milk within the meaning of Regulations 28 and 29, and he dismissed the information.

Held (Wills J. and Kennedy J.), That this was an outbreak of infectious disease within the building in which the respondent kept milk, and, therefore, that the non-removal from the ground-floor of milk for sale was an infringement by him of the above regulation.

Appeal allowed.

NEGLECT TO CALL IN MEDICAL AID.

REG. *v.* SENIOR (Court for Crown Cases Reserved, Dec. 10, 1898).

(The Lord Chief Justice of England, Mr. Justice Day, Mr. Justice Wills, Mr. Justice Grantham, Mr. Justice Lawrence, and Mr. Justice Wright.)

The prisoner was tried before Mr. Justice Wills at the Central Criminal Court, for the manslaughter of his child, aged about eight months. The father belonged to the sect known as "Peculiar People," neglected to call in medical aid, and the child died from diarrhœa or pneumonia. It was admitted that the prisoner had in all other respects discharged his duty as a father. For the neglect of calling in medical aid the prisoner was found guilty of manslaughter at the Central Criminal Court. The questions submitted by Mr. Justice Wills for the consideration of the court were whether his Lordship was right in law in the direction he gave to the jury, and also whether there had been evidence upon which the jury could properly convict.

The Lord Chief Justice, after consulting with his colleagues, said the charge in the court below was brought under the Act of 1894, which provided that if any person wilfully neglected to provide medical aid, whenever it could be shown that the supply of such aid would relieve suffering or avert death, that person should be deemed guilty of a misdemeanour. In this case there was no dispute as to the capability of the defendant to furnish medical aid, nor was there any question as to the want of fatherly affection. The refusal seemed to have been founded upon a belief that it was contrary to

the teachings of the Bible to call in medical aid, the defendant believing in what was called "faith-healing" methods. His Lordship reviewed the incidents of the case, and said the act of refraining from calling in medical aid was done deliberately. The father was bound to take such reasonable care as might be necessary, and he failed to take it. Where, his Lordship asked, was the line to be drawn in connection with the abstaining from supplying medical aid? Supposing a child had broken its thigh and needed the application of anæsthetics prior to the performance of a necessary operation, could it be said that a man was not culpable in standing by and refusing to administer the drug? It seemed to him that there could be no other answer to the case than that the refusal was an offence. There could be no doubt that there was ample evidence to justify the conviction, and he thought Mr. Justice Wills was perfectly right in directing the jury in the way he did. Upon both points, therefore, the conviction should be affirmed.

The other judges expressed their concurrence, and the conviction was accordingly affirmed.

REG. *v.* SENIOR (Central Criminal Court, Dec. 15, 1898).

Mr. Justice Wills passed sentence of four months' hard labour, and in doing so, observed the neglect of the prisoner was none the less a breach of the law because it was a deliberate determination that was founded upon some supposed notion of duty. He was not going to discuss the tenets which the prisoner professed, or whether they were reasonable or natural. It was enough to say that they conflicted with the law, and that the law in a civilised community must be obeyed. It would, however, be a lamentable thing if the moderate standard which determined the minimum of parental obligation towards helpless children were lowered in respect of some particular class of persons. To allow that would be to make every man a law to himself in a very different sense from that in which the words were used in the sacred Scriptures. There were, said his lordship, people in this country who no doubt conscientiously believed that weakly and deformed children should in the interests of mankind be left to perish, and if the views held by the Peculiar People were tolerated as an excuse for breaking the law, there was no reason why the conscientious considerations of those other persons should not be treated with equal respect.

REG. *v.* JAMES COOK and GRACE COOK (Central Criminal Court, Oct. 26, 1898). 62 J.P. 712.

Manslaughter—Neglect to call in Medical Assistance—Conscientious Objection.—The prisoners were indicted with the manslaughter of their daughter, aged twenty months. It appeared from the evidence that the prisoners belonged to a sect known as "The Peculiar People," and that part of the religion of these people is that it is wrong to call in medical aid or to accept medical assistance at all. It was proved that the child died on the 21st of August, and that no medical man

had been called in by the prisoners, though they had sufficient means to pay for medical attendance, and that medical treatment would have prolonged the child's life.

Held (Bigham J.), That the fact that a person conscientiously objects to call in medical assistance, and *bonâ fide* believes that it would be wrong to do so, is no defence to a charge of manslaughter, if through the neglect to call in such assistance the death of any one in his care or custody is accelerated. Verdict: *Guilty.* Both prisoners were bound over in their own recognisances to come up for judgment if called upon.

NUISANCES.

ANDREW *v.* ST. OLAVIS BOARD OF WORKS (Divisional Court). 1 Q.B. (1898) 775. 62 J.P. 328.

Nuisance—Abatement Notice—Service of, on Person not liable—Work done in Obedience to Notice—Recovery of Expense from Person Liable—Public Health (London) Act, 1891, sec. 4, sub. ss. 1, 4; sec. 11, sub. s. 1.—Appeal from the Southwark County Court. By s. 4, sub. s. 1, of the Public Health (London) Act, 1891, the sanitary authority may in certain cases serve upon the owner or occupier of premises upon which a nuisance exists, a notice requiring him to abate the same; and by sub. s. 4, if the person served with such a notice "makes default in complying" with it, he is to be liable to a penalty, whether any nuisance order is made upon him or not. By s. 11, sub. s. 1, "All reasonable costs and expenses incurred in serving a notice, making a complaint, or obtaining a nuisance order, or in carrying the order into effect, shall be deemed to be money paid for the use and at the request of the person on whom the order is made; . . . . or if no order is made . . . . then of the person by whose act default or sufferance the nuisance was caused." The drainage of two adjoining houses, situate in the parish of St. John, Southwark, being so defective as to be a nuisance, the sanitary authority served a notice under s. 4, sub. s. 1 of the Public Health (London) Act, 1891, upon the owner of the houses, requiring him to abate the nuisance. The drainage of the houses was carried away by means of a single pipe, and the owner being under the belief that this combined system of drainage had been authorised by an Order of the sanitary authority, and that the liability to repair the pipe consequently lay upon him under the provisions of the Metropolis Local Management Act, 1855, executed the works prescribed by the notice. In fact, the combined plan of drainage had not been authorised by any such order, and the liability to repair the pipe was by that Act imposed upon the sanitary authority. On discovery of the mistake, he sought to recover from the sanitary authority the expense he had incurred. The County Court judge gave judgment for the defendants. The plaintiff appealed.

Held (Lord Russell of Killowen, C.J., and Mathew J.): (1,) That as non-compliance with the notice would have rendered him *primâ facie* liable to a penalty under s. 4, sub. s. 4, of the Act of 1891, he

was practically compelled to do the work, and that he could consequently recover the expense as money paid at the sanitary authority's request; (2,) That the "expenses of carrying the order into effect," mentioned in s. 11, include the expenses of doing work in obedience to an abatement notice, and that consequently the owner, whether he was compelled to do the work or not, could, under that section, recover the expense from the sanitary authority as the persons by whose default the nuisance was caused.

Gebhardt v. Saunders, 2 Q.B. (1892) 452, *followed. Appeal allowed.*

LANCASTER *v.* BARNES DISTRICT COUNCIL (Divisional Court). 1 Q.B. (1898) 855. 62 J.P. 405.

Nuisance—Several Houses Drained by Single Private Drain—Joint Notice to Several Owners to Repair—Public Health Act, 1875, s. 41—*Public Health Act*, 1890, s. 19.—Case stated by justices for the county of Surrey. Five houses in Upper Richmond, of which three belonged to one owner and two to another, were connected with the public sewer by means of a single private drain situate at the rear of the houses. The drain being a nuisance and injurious to health the respondents served upon the appellant a notice under s. 41 of the Public Health Act, 1875, and s. 19 of the Public Health Act, 1890, addressed jointly to both the owners of the said five houses, requiring them to relay the drain with an intercepting trap at one end and to place a ventilator at the head of the drain with proper connections to each of the five houses. Default having been made the respondents repaired and cleansed the drain, and sought by complaint to recover from the appellant his apportioned share of the incurred expenses. It was contended on behalf of the appellant that, inasmuch as the notice directing him to do work in part upon premises of which he was not the owner and occupier, and upon which therefore he could not enter without committing a trespass, and default in compliance with which rendered him liable to penalties, it was bad in law, and all subsequent proceedings based upon it were illegal. The justices over-ruled the contention, and ordered the appellant to pay the amount apportioned upon him, subject to a case for the opinion of the Court.

Held (Wills J. and Kennedy J.), That the fact that neither of the owners could relay the part of the drain situate in the other's premises without committing a trespass was no objection to the validity of the notice, and that on non-compliance with the notice the local authority might execute the work and recover the expenses from the owners under the last-mentioned section. *Case remitted to justices.*

SEWERS.

GEEN *v.* VESTRY OF ST. MARY, NEWINGTON (Divisional Court). 2 Q.B. (1898) 1. 62, J.P. 564.

Sewer—Drain—Nuisance—Drainage of Contiguous Houses by Combined Operation—Subsequent unauthorised Connection with Drain from Adjoining Premises—Metropolis Local Management Act,

1855, s. 74, 250.—Case stated by a metropolitan police magistrate. The appellant who was the owner of four houses in the parish of St. Mary, Newington, was summoned under s. 2 of the Public Health (London) Act, 1891, in respect of a nuisance by reason of their defective drainage. In 1874 the then owner of these four houses applied for an order of the respondents under the Metropolis Management Act, 1855, to drain them by a combined operation, and deposited a plan of the proposed drainage. Thereupon the houses were drained according to the plan, and the drains were laid under the superintendence of a foreman of the surveyor, but no minute of the respondents or of any of their committees could be found having any reference to the matter ; and the appellant contended that there was no evidence of any order by the respondents sanctioning the combined drainage operation, but the magistrate decided against this contention.

It was further proved that a drain from the stable of an adjoining house was afterwards, without the knowledge of the Vestry, connected with this drain and the drainage from the stable turned into it, and the appellant contended that this thus became a sewer, and that the respondents were liable to keep the drainage of the said houses in repair, and cited *Kershaw v. Taylor* (1895) 2 Q.B. 208, 471. The magistrate disagreed and made an order upon the appellant to abate the nuisance.

Held (Wills J. and Kennedy J.): (1,) That the Vestry had allowed a combined system of drainage to be constructed ; and (2,) That the unauthorised connection of the drainage from the stable with the drain from the four houses converted the latter into a sewer, and that therefore the owner was not liable to abate the nuisance.

Appeal allowed.

SEAL *v.* MERTHYR TYDFIL URBAN DISTRICT COUNCIL (Divisional Court) 2 Q.B. (1897) 543.

Sewer or Drain—Single Private Drain draining several Houses—Liability to Repair—Public Health Act, 1875, s. 41—*Public Health Acts Ammendment Act*, 1890, s. 19.—Case stated by justices of Merthyr Tydfil. A drain ran at the back of a number of houses through the gardens and joined the sewer of the District Council. A connection from each house with the drain at the back was made by a branch drain. The drain could not be used by any other premises than the said houses and extended the whole length of these houses until it reached the Council's sewer. The drain became a nuisance and the District Council, which had adopted the Public Health Act, 1890, took proceedings against the appellant under s. 41 of the Public Health Act, 1875, as extended by s. 19 of the Public Health Act, 1890. The justices found that the pipe was a drain used by two or more houses belonging to different owners; that it was a drain for the particular houses and no other premises, and that it was not a general drain into which any houses could be drained. They therefore decided that it was a private drain within the meaning of the Act of 1890, and that the Council had a right to proceed under the Act

of 1875. They consequently ordered the appellant to abate the nuisance.

Held (Cave J. and Ridley J.), following *Bradford v. Eastbourne Corporation*, 2 Q.B. (1896) 205, and disapproving *Hill v. Hair*, 1 Q.B. (1895) 906, that the pipe in question was a single private drain within the meaning of s. 19 of the Act of 1890. *Appeal dismissed.*

VESTRY OF ST. MATTHEW, BETHNAL GREEN *v.* LONDON SCHOOL BOARD (House of Lords, E.) A.C. (1898) 190. 62 J.P. 532.

Sewer—Drain—Liability to Repair—Sewer made without Approval of Vestry or Metropolitan Board of Works—Metropolis Management Act, 1855, ss. 68, 69, 74, 250—*Metropolis Management Amendment Act*, 1862, ss. 47, 48, 61.—(Earl of Halsbury, L.C., Lords Herschell, Morris and Shand). The fact that the requisite sanction and approval for the making of a sewer in the Metropolis was not obtained from the Vestry or Metropolitan Board of Works does not prevent it, when made, from being a sewer within the meaning of the Metropolis Management Acts, and as such vested in the Vestry and repairable by them. In 1886 the owner of a block of houses in Bethnal Green laid down a pipe to carry off the drainage from them, and connected the pipe with a sewer belonging to the Vestry in a neighbouring street. There was no evidence of any notice having been given to the Vestry, or of any order having been made by them, or of their sanction, or of the approval of the Metropolitan Board of Works having been obtained, under the Metropolis Management Act, 1855, or of the Amendment Act, 1862.

Held, That the probable inference of fact was that the pipe was laid with the sanction of the Vestry and the approval of the Metropolitan Board of Works required by the Acts ; but whether that was so or not the pipe was a sewer within the meaning of s. 250 of the Act of 1855, and was consequently vested in the Vestry and repairable by them.

The decision of the Court of Appeal (1896) 2 Q.B. 319, affirmed. *Order appealed from affirmed and appeal dismissed with costs* ("Lords' Journal," Nov. 26, 1897). The decision of the Court of Appeal was reported in the "Medical Annual," p. 596, (1898).

PASSMORE *v.* OSWALDTWISTLE URBAN COUNCIL (House of Lords, E.) A.C, (1898) 387. 62 J.P. 628.

Sewers—Factory Refuse—Duty of Local Authority to make Sewers—Remedy for Default—Mandamus—Complaint to Local Government Board—Public Health Act, 1875, ss. 15, 299—*Rivers Pollution Prevention Act*, 1876, s. 7.

Held (Earl of Halsbury, L.C., Lords Macnaghten, Morris and James of Hereford), The duty of a local authority, under s. 15 of the Public Health Act, 1875, to make such sewers as may be necessary for effectually draining their district for the purposes of that Act, cannot be enforced by an action for mandamus brought by a private

person ; the only remedy for neglect of the duty is that given by s. 299 of the Act, a complaint to the Local Government Board.

The decision of the Court of Appeal in *Peebles v. Oswaldtwistle Urban Council*, 1 Q.B. (1897) 625, affirmed. *Order appealed from affirmed and appeal dismissed with costs* ("Lords' Journal," April 28, 1898). The decision of the Court of Appeal was reported in the "Medical Annual," p. 595, (1898).

SMOKE NUISANCE.

MILLARD *v.* WASTALL (Divisional Court), 1 Q.B. (1898) 342. 62 J.P. 137.

Smoke Nuisance—Abatement Notice—Public Health Act, 1875, s. 94.—Special case stated by the justices of Ramsgate. The respondent, the occupier of a factory in the borough of Ramsgate the chimney of which caused a nuisance by sending forth black smoke, was served by the local authority for the borough with a notice under s. 94 of the Public Health Act, 1875, requiring him within seven days to abate the same, and for that purpose to abstain at all times hereafter from doing or suffering to be done anything which shall cause the chimney to send forth black smoke in such quantity as to be a nuisance. The respondent neglected to abate the nuisance, and the appellant thereupon preferred a complaint under s. 95. At the hearing it was objected on behalf of the respondent that the notice was insufficient, as it did not specify the work required to be done in order to abate the alleged nuisance, and in support of this objection reliance was placed upon *Reg. v. Wheatley* (1885) 16 Q.B.D. 34. The justices upheld the objection and without hearing any evidence dismissed the complaint, subject to a case for the opinion of the Divisional Court.

Held (Day J. and Lawrence J.), That the notice was good, and that it was not necessary that it should go on to require the execution of any works or the doing of anything as a means to the abatement.

Case remitted to the justices.

UNSOUND MEAT.

OMEROD *v.* MAYOR, ETC., OF ROCHDALE (Manchester Assizes) 62 J.P. 153 (1898).

Destruction of Unsound Meat without order from a Justice—Liability of a Local Authority—Public Health Act, 1875, ss. 116, 117.—An Assistant Inspector of Nuisances acting under the directions of the Medical Officer of Health of the borough of Rochdale appointed under s. 11 of the Towns Improvement Clauses Act, 1847, seized a certain quantity of unsound meat exposed for sale and intended for the food of man, and caused the same to be destroyed without the order of a justice of the peace obtained in that behalf. The plaintiff, a butcher, claimed damages against the defendant corporation for the wrongful seizure and destruction of certain butchers' meat, which he contended was sound and should have been

taken before a magistrate and obtained an order pursuant to ss. 116, 117 of the Public Health Act, 1875. The defendant's contention was that the meat was unfit for food and that the plaintiff assented to its being destroyed ; further, assuming the meat was good the Medical Officer of Health and Assistant Inspector of Nuisances were not the servants of the defendants, and the seizure and destruction of the meat was not done by the orders and directions of the defendants, and further the defendants were not liable for their acts, by virtue of the appointment of the Medical Officer under the Public Health Act, 1875. The jury found a verdict for the plaintiff, damages £50.

Held, by Bruce J., on further consideration, that the seizure and subsequent destruction were improper, and the Corporation of the Borough were liable to damages for the wrongful acts of their servants.

Berwick v. The English Joint Stock Bank (1867) L.R., 2 Ex. 259, *followed*.

VACCINATION.

VACCINATION ACT, 1898 (61 and 62 Vic. c. 49).

Mr. Chaplin's Vaccination Act is founded on the recommendation of a Royal Commission which was appointed under Lord Herschell's chairmanship in 1889, and, after five interim reports, finally reported in 1896, four out of thirteen Commissioners (of which four, two reported separately) dissenting from the policy of compulsory vaccination altogether, and two recommended a compulsory second vaccination. Discovered in 1798, so quickly and so generally deemed efficacious that in 1802 and 1806, Sir W. Jenner received rewards out of public money, made gratuitous in 1840 and compulsory in 1853, and further urged by the Parliaments of 1867, 1871, and 1874, vaccination has for the last thirty years progressively declined in favour, not only with those for whose children gratuitous vaccination is provided, but also with the Guardians of the Poor elected to enforce it. The result is that 300,000 out of the 900,000 children born in 1897 were unvaccinated, and unvaccinated persons number their hundreds of thousands, and one-fourth of the Guardians of the Poor disobey the orders of the Local Government Board that they should prosecute for disobedience to the law. The new Act, while leaving compulsory vaccination nominally undisturbed, is entirely devoted to meeting the objections to it in every conceivable way. The period within which a child must be vaccinated is extended from three to six months from its birth, and the public vaccinator, if the parent so requires, shall visit the home of the child for the vaccination. In case of non-vaccination within four months from birth, the public vaccinator after twenty-four hours' notice shall visit the home and shall offer to vaccinate the child with glycerinated calf lymph or such other lymph as may be issued by the Local Government Board. The public vaccinator shall not vaccinate if the condition of the house is such, or there is or has been a recent prevalence of infectious disease in the

district that the child cannot be safely vaccinated, and in such a case shall postpone the vaccination and notify the Medical Officer of Health accordingly.

No parent of any child born in any institution or infirmary shall be compelled to permit the child to be vaccinated within six months of its birth.

In addition to these, the Act contains three provisions directed to mitigating the penalties for disobedience, and one to preventing any penalties being inflicted in proved cases of conscientious belief that vaccination would be inimical to a child's health. In mitigation it is enacted that no order made under s. 31 of the Act of 1867, to vaccinate shall be made by a magistrate after conviction of non-compliance with a similar order relating to the same child; that no proceedings for disobedience to such an order shall be taken against any person who has been convicted under s. 29 of the Act of 1867, on account of the same child until it has reached the age of four years; and that persons committed to prison on account of non-compliance with any order or non-payment of fines or costs under the Vaccination Acts, shall be treated in the same way as first class misdemeanants.

As to prevention of penalties in certain cases, s. 2 provides that: (1,) No parent or other person shall be liable to any penalty under s. 29 or s. 31 of the Vaccination Act of 1867, if within four months of the birth of the child he satisfies two justices, or a stipendiary or metropolitan police magistrate, in petty sessions, that he conscientiously believes that vaccination would be prejudicial to the health of the child, and within seven days thereafter delivers to the vaccination officer for the district a certificate by such justices or magistrate of such conscientious objection.

There is a large number of repeals of the 1867 and 1871 Acts including that of s. 17 of the Act of 1867, by which a public vaccinator was empowered to take lymph from a vaccinated child for the performance of other vaccinations, and that of s. 10 of the Act of 1871, by which any person preventing a public vaccinator from so doing was liable to a penalty; but "arm-to-arm" vaccination is not otherwise interfered with.

The second section of this Act as above set forth came into operation on the 12th August last, and the remainder of the Act came into force on the 1st January, 1899. This Act remains in force until the 1st January, 1904, and does not extend to Scotland or Ireland.

The Local Government Board may make rules and regulations with respect to the duties and nomination of public vaccinators, whether under contracts made before or after the passing of this Act.

WATER-CLOSETS.

WOOD *v.* WIDNES CORPORATION (Divisional Court).
2 Q.B. (1897), 357.

Water-closets—Local Authority—Powers—Requiring sufficient Water-closet to be Provided—General Resolution requiring adoption of Particular System—Invalidity—Public Health Act, 1875, s. 36.—

Case stated by justices of Widnes. The appellant was the owner of certain houses in the borough of Widnes. In February, 1895, the respondents "Resolved that in all future cases of nuisances requiring the reconstruction of privies and ashpits the local authority of this borough do so far as practicable order that such privies and ashpits be converted into the waste water-closet system or into such other water-closet system as the local authority may from time to time approve, etc." In March, 1895, the appellant was served with a notice stating that there was a nuisance caused by the state of his privies, and requiring that they be converted into water-closets to abate the nuisance. Such notice not having been complied with a further notice was served on the appellant requiring him "to provide a sufficient privy and ashpit furnished as aforesaid upon the waste water-closet system approved by the Corporation." This notice not having been complied with the respondents did the work and sought to recover, as private improvement expenses, the expenses incurred by them in doing such work. The justices made an order for the payment, but left the question for the Court as to whether the resolution of February, 1895, was valid, or if not, whether it invalidated the subsequent proceedings.

Held (Lawrence J. and Ridley J.), That s. 36 of the Public Health Act, 1875, which empowers a local authority to give notice requiring the owner of a house to provide a sufficient water-closet, and in case of non-compliance empowers the local authority to do the necessary works and recover the expenses, does not empower such authority to enforce a general resolution that in all such cases within their jurisdiction a particular water-closet system shall be adopted, but they are bound to exercise their discretion in each particular case, and therefore such a resolution is invalid, and invalidates proceedings taken in pursuance of it.

Tinkler v. Wandsworth District Board of Works, 2 De.G. & J. (1858) 261, *followed*. *Appeal allowed.*

WOOD *v.* WIDNES CORPORATION (Court of Appeal) 1 Q.B. (1898) 463. 62 J.P. 84.

Water-closets—Local Authority—Powers—Powers to require sufficient Water-closet to be Provided—Resolution requiring adoption of Particular System—Notice in accordance with General Resolution—Invalidity—Public Health Act, 1875, s. 36.—Appeal from a judgment of the Divisional Court, reported 2 Q.B. (1897) 357, on a case stated by justices. (Lord Halsbury, L.C., A. L. Smith, L.J., and Collins, L.J.) Sec. 36 of the Public Health Act, 1875, which empowers a local authority to give notice requiring the owner of a house to provide a sufficient water-closet, earth-closet or privy, and in case of non-compliance empowers the local authority to do the necessary works and recover the expenses, does not empower such authority to enforce a general resolution that in all such cases within their jurisdiction a particular system shall be adopted; but they are

bound to exercise their discretion in each particular case, and consequently a notice in accordance with the general resolution and requiring compliance with its provisions is invalid.

Appeal (by the respondents) *dismissed.*

ROBINSON *v.* MAYOR, ETC., OF SUNDERLAND (Durham Assizes) 62 J.P. 216 (1898).

Water-closets—Notice by Local Authority—Validity—Right of Action—Injunction—Public Health Act, 1875, ss. 71, 268.—The plaintiff brought an action for an injunction against the defendants to restrain from entering upon his premises for the purpose of doing the works specified in their notice which he contended was illegal. The notice required the plaintiff to provide a sufficient water-closet to his premises according to the specification given by the notice, viz., a new wash-down pedestal water-closet, etc.

Held (Ridley J.): (1,) That a local authority have no power under the Public Health Act, 1875, to require the owner of premises used as dwelling houses to supply any particular kind of water-closet thereto; they have only power to require him to supply a sufficient one; (2,) That they have no power to require a general system to be adopted; they must consider each case by itself.

Wood v. Widnes Corporation 1 Q.B. (1898) 463. 62 J.P. 84, *followed.* *Injunction granted.*

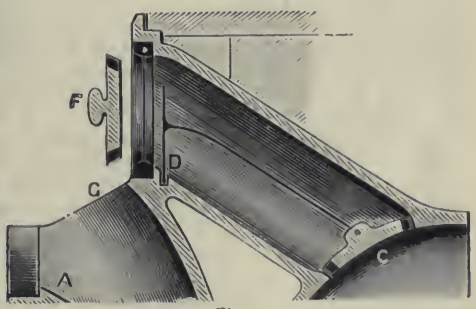
Sanitary Science, 1898.

By JOSEPH PRIESTLEY, B.A., M.D., D.P.H.,
Medical Officer of Health, Lambeth, London.

PRACTICAL SANITATION.

Manholes are often objected to on the ground of expense, and to get rid of this objection Mr. C. Jackson, of 21, Brocklebank Road, Earlsfield, S.W., has introduced his patent concrete slabs to be used in place of bricks, to which they are equal (if not superior) in strength and lasting qualities, whilst effecting a great saving in labour and expense in construction. Each slab has a finished smooth surface on the face, and at the back a rough surface with dovetail joggles, and its edges are tongued and grooved, ensuring thereby a perfectly flush surface. The slabs vary in size, and are fitted in manholes as follows: The slabs form the inside and outside of the walls, and are adjusted to the required thickness, and concrete afterwards run into the space between, thus binding them together into a solid block—the tongued and grooved edges to the different slabs causing them to fit at their sides, one to the other, as securely and tightly as the parts of a Chinese puzzle. The inside surface of the manhole being smooth and hard, there is no flaking (as occurs sometimes in bricks), leading to blocking up of the intercepting trap, whilst the time, labour, and cost of construction are considerably reduced owing to simplicity of fixing.

In connection with manholes, Barron's patent channel bends may be mentioned. They are three-quarter circular at the inlet and elliptical at the outlet, thereby concentrating the sewage to the inner side of the channel bend, and deflecting same in an oblique direction, and in a direct line, with the fall of the drain. Further, the inner side is made higher and slightly curved to compensate for the loss of area caused by the sloping side, and in this way prevents splashing of sewage over the opposite benching.



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Mr. Barron has also patented an intercepting trap arranged with

a double stopper in its raking or sewer arm, situated at the extremity and kept in position by an iron rod fitting into a slot, as shown in *Fig.* 95. The trap is self-cleansing, and the inlet narrowed.

Messrs. Burn Brothers, of Edinburgh and London, have improved their system of cast-iron "gas-tight" house drainage fittings and sanitary appliances (drains, chambers, traps, bends, etc.), being of opinion that iron is better than earthenware for such purposes. The drainage pipes are made in 6 ft. and 9 ft. lengths (*Fig.* 96), equal in strength to the street mains, and coated (as also the soil pipes) at a high temperature inside and outside, to prevent corrosion, with Dr. Angus Smith's patent solution, or glass-enamelled on their internal surfaces. The joints are made with yarn and molten lead, well caulked and thereby rendered absolutely gas-tight, whilst they are fewer in number owing to the greater lengths of the pipes. With iron drains there is little, if any, danger from the joints being interfered with during the filling and ramming in of the earth in the trenches, or owing to subsidence of the buildings or soil around them. The inspection chambers are also made in cast iron, being formed in the pipes themselves and fitted with covers jointed to the pipes, preferably by means of india-rubber washers, galvanised iron bolts, and gun-metal nuts. The chambers are brought up to the surface of the ground by manholes built in brickwork.

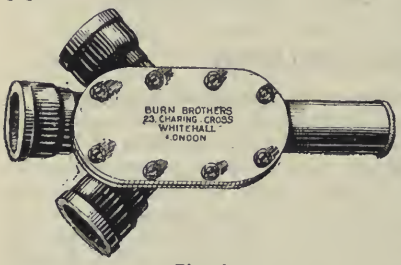

Fig. 96.

The same firm has recently introduced an improved expanding air-bag drain-stopper (*Fig.* 97), with a range of expansion from 4-inch to 9-inch diameter, and provided with loose canvas covers to suit the various sizes of drain pipes. A tube is carried through the centre for application of smoke or air tests, and is provided with a plug for use with the water test. The stopper can be inflated from either end, and by means of cords can be drawn to any point of a drainage system, and then inflated by means of an air tube of sufficient length. In this way any section of a drainage system can be tested separately, including the portion between the intercepting trap and the sewer. The stoppers are sometimes made cylindrical, for use in curved branches in manholes, gully traps, etc., but a bevelled cog-wheel stopper is especially useful where drains deliver into sharp three-quarter section channel

Fig. 97.

bends, the cog-wheel being actuated by means of a handle well above the channels.

Messrs. Winser & Co., of London, have a patent on the same principle of combining three sizes in one, called the surveyor's patent combined drain testing plugs (*Fig* 98). The most useful form is the 4, 6, and 9-inch sizes combined, made in brass with special eccentric rubbers, fitted with water-way jointed thumbscrews, wheeled action, etc.

Fig. 98.—Showing the Plug closed.

Messrs. Doulton & Co., of Lambeth, have introduced during the year an inspection gully which they call the "Lambeth" (*Fig.* 99). Its advantages are: (1,) Facility for inspecting and sweeping the drain; (2,) Deep water seal and small water area; (3,) Gully is self cleansing; (4,) The inspection arm has a galvanised iron cover, fitted into a fixed galvanised iron frame, and secured with gun-metal screws and nuts. The grating is 9″ × 9″, and the outlet 4″.

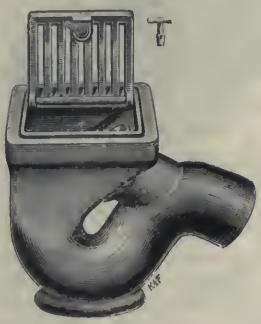

Fig 99.

There are two other gullies on the same principle, and patented by the same firm, called the "Hygeian" and the "Universal." In the former, great facilities are afforded for inspecting and sweeping the drain, the inspection cover being on the surface, and consisting of a plate fitting into a fixed frame with tongue and groove joint, and being secured with gun-metal screws; whilst in the latter, the inspection arm is fitted with the Stamford air-tight stopper, and the grating is 6″ × 6″ (the outlet being 4″).

Messrs. Reid & Co., of 69, St. Mary Axe, London, have introduced an improved pneumatic drain stopper (Barth's patent) for use when testing drains. It is expressly designed with a view to overcoming the difficulty experienced with most other stoppers of readily and effectually stopping the ends of branch drains brought into inspection chambers through three-quarter section channel junctions, or over-channel bends. The cushion is expanded by a pump and thereby fixed in position, forming a perfectly water- and air-tight joint, and adapting itself (better than the solid rubber rings) to any irregularities. The appliance is fitted with a removable cap, to allow the drain to be emptied gradually without fear of flooding the operator and surroundings.

Messrs. Hyde & Co., of Kennington Cross, London, have patented

a new sanitary sink waste and trap, called the "Hydeal" (*Fig.* 100). It is designed for use in kitchens, etc., and consists of a galvanised iron nozzle which is cemented into the sink, and a brass grate, which has a patent locking arrangement by means of two small feet or lugs fitting into corresponding slots and tapering undercuts provided on the inside surface of the nozzle. When in position the grating appears to be fixed (soldered down), but can be unlocked at any time for cleansing purposes. A special shaped galvanised trap (*P* or *S*), fitted with a brass cleaning screw plug, is provided for fixing immediately underneath the sink, if thought necessary. The appliance is made to connect either with 2″ rain water pipe or with stoneware drain pipe.

Fig. 100.

Messrs. Hyde have also patented a sealed basement gully (*Fig.* 101), for intercepting rain water pipes, sink and bath wastes, etc., and preventing back floodings in basements. It is fitted with a perfectly air- and water-tight cover of galvanised iron, and has a deep grease joint into which the cover is readily locked and released by a simple rotary movement, applied by a water key wrench or any similar instrument.

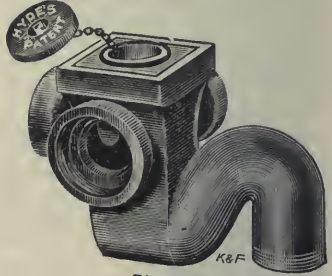

Fig. 101.

The necessity for anti-siphonage pipes is becoming more and more acknowledged, as is also the great cost of the work in connection with the same, it being customary for a puff pipe to be run up the height of a soil pipe or building, and the pipes from the various W.C. traps branched into it. To avoid this expense, Mr. P. T. Ardley has patented a new anti-siphonage closet trap (*Fig.* 102), consisting of a siphon (made of brass or other metal), to be attached to the crown of the trap, and having at its turn-down end an india-rubber or metal ball attached to a guiding pin working in a slot, and so sealed that the vacuum caused by the flushing of the trap

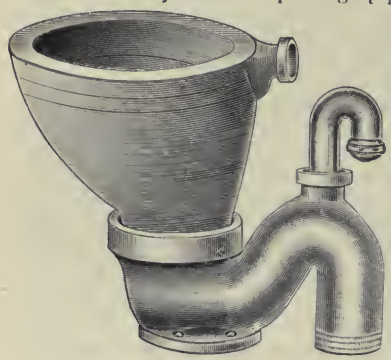
Fig. 102.

lifts the ball, obtaining thereby a fresh intake of air by suction. The ball then falls down by its own weight, and fits over the inlet hole, for the purpose of preventing an escape of drain or sewer gas—this action being automatic. The appliance is a simple one, and will, of course, depend for its efficacy on the shutting off the drain or sewer gas by the ball sealing up the inlet hole. The same principle is adopted for the fresh air inlet, to take the place of the mica valve which is so apt to get out of order.

Messrs. Claughton Bros., of Leeds, have modified their patent "Adaptable Suspension" washdown closet (*vide* "Medical Annual," 1898, p. 604), and now produce it in a cheap form called the "Drudge," for use in basements and cottage property. The basin and trap are separate, but when cemented together form a strong joint; whilst the basin is suspended in a frame, which holds it firmly in position and takes all the weight. The trap being separate, it can be swivelled round to meet any position of the drain. The cast-iron brackets, which support the basin, are secured to the floor and wall, so that the space underneath and around the pan and trap can be readily cleansed.

Messrs. Duckett & Son, of Burnley, have introduced several improvements during the past year :—

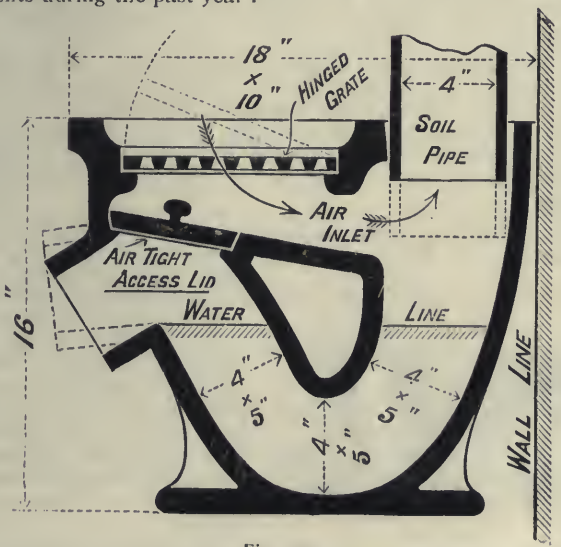

Fig. 103.

(1,) Improved patent buffer for automatic tippers, made of india-rubber in the form of a cylinder (with an aluminium lining), which partly revolves at every action of the tippers on a moveable axle.

(2,) A patent disconnecting trap for the foot of soil pipes at ground level, with (*a*,) a patent hinged grating (*Fig.* 103), which acts not only

as an air inlet, but also as an inlet for surface water, which passes down the conduit between the grating and the foot of the soil pipe; and (*b*,) a moveable lid with special air-tight joint for ready access to trap and drain.

(3,) Lead-lined siphon plunger cistern, strongly-made of red deal, dovetailed, lined with 5 lbs. lead, fitted with copper ball tap, and galvanised iron plunger.

(4,) Improvements in glazed stoneware urinals, consisting of corner urinal with a detachable basin, which can be fixed also to the ordinary ranges.

(5,) A new, inexpensive slop W.C., "The Rapid," with a top flush, a combined pedestal basin and trap in one piece of ware, the trap being above the floor level, and the tipper readily get-at-able.

(6,) A new slop W.C., "The Victor," also with a top flush and combined basin and trap, but without an automatic tipper, the connection of sink waste to closet being constructed to produce a stronger flush than is obtained by closets without flushing apparatus.

(7,) Siphonic open trough closets, the siphonage of which commences the moment the flushing cistern begins to discharge, continues until all the contents of the trough are drawn out, and ends with an afterflush of clean water through the special flushing rim and conduit.

(8,) An improved ready access to the slop water closet (tipper and trap), known as "Arrangement B.," which is so arranged as to dispense with a considerable quantity of brickwork.

It may be noted in connection with Messrs. Duckett's slop W.C.'s, that the Local Government Board has recently decided (March, 1898) that slop closets are sanitary for outside use in connection with cottages.

The Kensington patent siphonic closet traps and closets, manufactured by the Anchor Sanitary Potteries, Swadlingcote, is, as its name implies, siphonic in action, but the siphon is in the trap (*Fig.* 104) and not in the closet, so that it can be easily fitted to any other closet. The pan has a water surface of not less than 10 inches by 8 inches, and a water seal of 5 inches, and is easily flushed and cleansed by a 2-gallon flush. The principle is simple, and the closet does not readily get out of order.

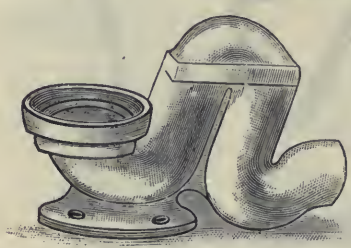

Fig. 104.

The Reeves Chemical Sanitation Co., Limited, of 17, Victoria Street, Westminster, has patented a self-locking water-seal for the purpose of protecting water supplies from foul air—water that is pure when sent into the mains being liable to serious pollution before consumption, when it is necessary to temporarily shut off the water. The seal is a siphon with a valve

at both ends, and the instant that suction from the main takes place, the two valves close, and the water-seal simultaneously presses the valve at the inlet tight on its seating, and the whole arrangement becomes a solid-locked seal, through which air cannot be forced.

Mr. George Jennings, of Lambeth, London, has patented a new hospital slop sink and bed-pan washer. The sink is conveniently arranged and provided with an opening in the hinged grid (forming a rest for pails, etc.), in which the bed-pan is supported in an inverted position, so that the contents can be flushed out and the bed-pan thoroughly washed by a rubber tube having a flexible rubber nozzle specially arranged for this purpose. For use in infectious hospitals a flushing chamber is provided with hermetically sealed door, in which the bed-pan can be enclosed and washed, and the fæces flushed direct into the drain without possibility of contaminating the atmosphere of the ward, or disseminating bacteria or disease germs. An outlet valve is also provided, so that when closed the chamber can be filled and the bed-pan completely submerged in a suitable antiseptic solution provided for this purpose.

Mr. Jennings has also introduced a new stove called the "London," the main feature of which is that the air is moderately and healthily warmed by prolonged contact with moderately heated and imperfectly conducting surfaces of fire-clay instead of being highly heated by contact with hot metallic conducting surfaces, which tend to impair, if not destroy, the vitalising properties of the warmed air, thereby rendering it unsuitable for patients or persons in delicate health especially. The stove is provided with a warming chamber into which pure air enters from without to be warmed thoroughly before passing into the rooms. The back of stove and flanges of the chamber are of fireclay, and all exposed surfaces are protected by linings of the same material. The stove stands in the middle of the room, or can be fixed in the chimney breast.

Messrs. Morrison, Ingram & Co., of Manchester, have also patented a combination bed-pan and urinal washing apparatus, by which bed-pans and urinals of various patterns can be cleansed in a simple and inoffensive manner, without the need of holding such utensils in the hand, as hitherto, whilst being cleansed, a great improvement in the sanitary appointments of hospitals, etc. A swivel urinal spray is also added, an addition that is also found to be very convenient.

The same firm make combination sinks and lavatories, the latter with an arrangement by means of which the hot and cold taps and wastes may be easily actuated by the foot instead of the hand—an arrangement which is especially useful in the case of a post-mortem room, operating theatre, etc.

The pure bitumen dampcourse of Messrs. Callender, of 11, Victoria Street, Westminster, London, consists of asphalte spread on sacking (both sides) in the form of sheets, and can be laid flatways between bricks. The sheeting is perfectly impervious to moisture, and can be used, embedded in concrete, for lining reservoirs for waterworks,

encasing gas and water pipes, or iron pipes of any kind, to prevent corrosion where laid in ground that affects the iron. The damp-course contains no coal-tar or pitch of any kind.

The same firm makes the granite plaster, which is hard, dense, elastic, quick drying, easy working, and cheap. It is an artificial stone composition, and used to take the place of ordinary mortar plaster used for the interior of buildings and for carrying ceilings, walls, etc.

Disinfectants.—During 1898 several favourable reports on the use of formaldehyde as a gaseous disinfectant have appeared, giving the results of bacteriological experiments carried out by such authorities as Prof. Delepine, of Manchester, and the late Prof. Kanthack, of Cambridge, both of whom speak well also of a new lamp for the generation of this particular gas, more especially in the case of private houses. It is known as the "Formogène Richard Disinfecting Lamp (*Fig.* 105), and was devised by Monsieur Richard, of Brussels. The generation of the gas is rapid, and easily (but inexpensively) brought about, and the lamp is in this way equal to the Alformant Lamp, and superior to the Autoclave of Trillat (*vide* "Medical Annual," 1898, pp. 608, 609). The capacity of the Formogène lamp's reservoir is 2 quarts. Practical experience alone will decide the ultimate success or failure of this new, much-vaunted, aërial disinfectant. The lamp is sufficiently explained from the figure, a special spirit being burnt. A metal cone under the wick receptacle unscrews so as to admit of the free access of air through the central tube. After lighting the wick, replace the brass bell, which contains a wire case with the platinised moss fitted on to it, and also the funnel and chimney (glass or copper, with small mica slots or windows). When the metal receptacle is hot, and the platinised moss begins to glow red, the cone is to be closely screwed up so as to shut off the central air supply, and the chimney blown down to extinguish any flame that may be left. The spirit is then gradually given off in fumes of formic aldehyde gas under the formula $CH_4O + O = CH_2O$(formaldehyde) $+ H_2O$. The lamp is extinguished by placing a small cap on the top of the chimney, and leaving it there for fifteen minutes. The fumes of formaldehyde act better in a warm than in a cold atmosphere, and the platinised moss requires renewal after having been used about fifty times. The lamps are made with one, two, and three burners, which are sufficient to disinfect rooms of about 30, 60, and 100 cubic yards respectively, and

Fig. 105.

are to be obtained from the Germicide Disinfecting Association, of 44, Gutter Lane, Cheapside, London. The necessity for aërial disinfection has, however, received attention during the year, and Neisser's experiments on Dust and Disease are especially interesting in this connection, as showing that diphtheria, typhoid, plague, cholera, and pneumonia germs are incapable of being carried by atmospheric dust, which the insensible currents (constantly in the air) can support. On the other hand, the following germs are aërially capable of being conveyed by these insensible air currents, viz. : staphylococcus and pyogenes aureus, the bacillus pyogenes and anthracis, the meningococcus, and the tuberculosis germ. The necessity for aërial disinfection is proved in connection with these last-named germs, but, if anything, disproved in the case of the former-named.

GENERAL REMARKS.

Bacteriological Diagnosis in Infectious Diseases.—Bacteriological diagnosis in infectious diseases (more especially diphtheria and typhoid fever) has been much discussed during the year, and the majority of important sanitary authorities have already equipped, or are on the point of equipping, their public health departments with such means. The importance of securing an early and certain diagnosis in such diseases as diphtheria and typhoid fever (and, it may be added, tuberculosis), is the first step in the prevention of their spreading, and a means whereby much good must ultimately accrue, when medical practitioners have realised or become educated up to, the great help that bacteriology affords them.

Diphtheria, unfortunately, tends to increase steadily, at least in urban districts, and a great responsibility, therefore, rests with sanitary advisers to leave no stone unturned to prevent such increase, and to make use, with such an object in view, of the most recently proved methods, bacteriological or otherwise. In London, the death-rate from diphtheria per million living was 500, as compared with an average 595 during the quinquennium 1893-1897, 356 during 1888-1892, 228 during 1883-1887, 166 during 1878-1882, and 116 during 1873-1877. This steady and persistent increase of diphtheria in London is a source of concern to the different metropolitan sanitary authorities who, with a view to lessening it, are offering, free of cost, to medical men bacteriological diagnosis and examination of cases, together with means of obtaining readily a supply of good, pure, and effective antitoxin—statistics still proving that the earlier such antitoxin is used, the better the result. In regard to London, the County Council have suggested that a central laboratory should be provided, but it is doubtful if such a step would be wise, as bacteriological examinations to be of use must be made rapidly, and the results communicated to the medical men in attendance forthwith, and to secure this it is better that each authority should be provided with its own *local* laboratory. London at present is too wide an area to make it advisable to centralise bacteriological diagnosis.

In the case of doubtful typhoid fever patients, bacteriological

diagnosis is also coming more and more into use, and the truth of Widal's experiments firmer and firmer established, the immobilisation and agglutination or clumping together of Eberth's bacilli when brought into contact with the serum or blood of a typhoid patient being now practically admitted by all investigators who are competent to form an opinion.

It appears certain that part of such diphtheria increase is due to mild and unrecognised cases which occur, and which, owing to their not being properly and efficiently isolated, give rise to the spread of the disease in others, especially in connection with schools and crowded assemblages of children, who are most prone to take this disease. Dr. Newsholme, in his recently published book on Epidemic Diphtheria, states as the result of his carefully arranged statistics, that diphtheria is spread chiefly by personal infection, but that this infectivity is only operative on a large scale under the influence of certain climatic conditions, meteorological and telluric, school infection being a true cause but only one among many causes of the spread of diphtheria, and more or less continued drought being a necessary antecedent. The whole subject is one requiring further investigation, as it is unsatisfactory to see the diphtheria rate gradually but persistently rising in urban communities, despite the *pro ratâ* improved sanitation. The careful daily examination of all school children is a matter that has yet to be tried in England, and may be found, when tried, of service in limiting, to some extent at least, this diphtheria increase.

The Bacteriological Treatment of Sewage.—During the year a Royal Commission on Sewage Disposal (with Lord Iddesleigh as chairman) has been appointed, but the report of such commission is not to be expected for many years, so that sanitary authorities are not to put off dealing with their local sewage treatment difficulties, but to rely upon their own official advisers—a somewhat anomalous condition of things!

The Local Government Board has, however, decided during the year to lend money to Exeter, and presumably to other authorities, for the carrying out of Cameron's septic tank sewage disposal, provided the Corporation secures, as part of such system, an acre of land to every 2,000 inhabitants; whilst Drs. Clewes & Houston, on behalf of the London County Council, have confirmed the results previously published by Mr. Dibdin as to the value of coke as a filtering medium.

In the light of present experience, it seems highly probable that the solution of the sewage disposal question is destined to be bacterial—the making use of nature's own scavengers, whether aërobic or anaërobic bacteria.

Tuberculosis and its Prevention.—The formation during the past year of a National Association for the Prevention of Consumption and other forms of Tuberculosis, marks a distinct advance, and will, it is hoped, tend to crystallise the good work that has been done hitherto by the efforts of private societies or indi-

viduals. The association is one that has a large field before it, and its practical results will be looked for with impatience, though with a considerable amount of hope, seeing that the Prince of Wales and many influential gentlemen (medical and otherwise) have taken up the society. Seventy thousand deaths in Great Britain per annum from tuberculosis is a large death-roll, and calls for the utmost energies of all public bodies interested in the public health and the prevention of disease, and for the interference of Parliament, whose third Royal Commission has also reported during the year, emphasising the fact that tuberculosis-infected milk is the principal source of infection, and especially dangerous when derived from milch cows whose udders are affected, and in which the disease spreads rapidly—a condition of things that would be improved by making all bovine udder diseases compulsorily notifiable. The great danger of tuberculosis-infected milk has been emphasised too during the year by Sir Richard Thorne Thorne, in his Harben Lectures. Whereas, the phthisis rate in adult life has steadily decreased *pro ratâ* with sanitary improvements, the number of deaths amongst young children from tabes mesenterica has increased as steadily, and that too proportionately with the amount of milk consumed, particularly infants' milk. Thus, tabes mesenterica shows a diminution of 8·1 per cent. for all ages, but a large increase (21 per cent.) in the case of infants under one year of age ; and these statistics are only to be explained by the great and widespread danger arising from tuberculosis-infected milk. It is calculated that 25 per cent. of the milch cows in Great Britain are tuberculous ; and it is clear, therefore, that preventive measures must be tried chiefly in regard to milk, and the following have been suggested :—

(1,) Seizure and slaughter of all cows with advanced tuberculosis in any part of the body, or with any suspicious udder disease, with compensation as to loss of milking capacity.

(2,) Adequate cubic and floor space in cowsheds.

(3,) Frequent systematic inspection of cowsheds and dairies by expert officials.

(4,) The systematic use of tuberculin as a diagnostic agent in tuberculous diseases in cattle, followed by isolation and the necessary slaughtering (as may be required) of infected animals, the tuberculin to be supplied to farmers free of cost by the Government.

(5,) Boiling of milk or its sterilisation by heat.

It is clear that the above-mentioned measures must apply also to imported milk and milk products, the expenses to be borne by a small tax on all such imported articles. Glasgow and Sunderland have set a good example to other sanitary authorities by certifying milk obtained from herds that have been guaranteed free from tuberculosis by the tuberculin test. The dangers of infection from tuberculous meat appear to have been exaggerated, and there is not so much call, therefore, for the same stringency being exercised as is the case with milk. Common sense points to the desirability of public abbatoirs supplanting private slaughter-houses (to ensure proper and

systematic meat inspection), and, as a sequel, of qualified meat inspectors (veterinary surgeons in preference) being greatly increased in numbers.

The importance of milk being boiled before use is so great that any invention that will help to render the taste of boiled milk more palatable is especially welcome, and this applies to the sparklets of Aërators, Limited, Broad Street Avenue, London.

Aymard's milk sterilisers are also useful, being capable of sterilising milk without altering the taste, whilst the nutritive properties are stated to be even superior to those of ordinary boiled milk.

A water steriliser has been brought prominently forward and much praised lately—the joint patent of Monsieur Desmaroux and Prof. Vaillard, of Paris, and known as the Vaillard-Desmaroux Water Steriliser. It consists of a preliminary filter to remove suspended matters from the water, which then passes through a first series of spiral compartments in what are called temperature exchangers, two in number—the first at a temperature of 120° F., and the second at 235° F. ; and then on to the superheater. The superheater consists of (1,) An outer steam bath ; and (2,) A serpentine, carrying the circulating water, with a temperature of (about) 240° F., back to the second series of spiral compartments in the aforementioned exchangers. There are valves, guages, and manometers to regulate pressures and temperatures, etc. The temperature of the ingoing water is 60° F., and that of the outgoing 65° F.

The flavour of the water (which is bacteriologically pure) and its limpidity are preserved ; the water is cold and can be supplied in large quantities at a moderate cost. This steriliser is to be seen at work at 24, Queen Victoria Street, London.

Compulsory Notification of Phthisis.—The compulsory notification of phthisis is not called for, for the following (other) reasons : (1,) The disease lasts for years ; (2,) Too great publicity for notification ; (3,) Notification would tend to prevent persons seeking medical advice early—a most important desideratum ; (4,) The disease is not infectious in the same way as the ordinary notifiable infectious diseases, *e.g.*, scarlet fever, diphtheria, small-pox, etc., so that notification is not needed in the former case as in the latter as a preliminary to isolation, which in the case of a chronic disease, like phthisis, is not only not needed but would be impracticable. Simple preventive measures can be readily adopted by patients themselves. (*Vide* page 434, present volume).

Enteric Fever and Soil.—An important factor in the spread of enteric fever is the condition of the soil near to and underneath houses—soil that may be polluted with human and other organic refuse and in addition with Eberth's bacilli. The disease is endemic in places, and this endemicity appears to be due, in part at least, to this pollution of the soil and subsoil, as shown by the recently published results of experiments by Drs. Sidney Martin and Robertson (acting independently), which prove that the germs grow in organically polluted earths, but languish and quickly die in virgin soils.

Further, the rains of spring and autumn, or the frosts and snows of winter, do not appear to kill them. The behaviour of growth may be lateral extension (Martin), and upwards and downwards (Robertson).

The practical conclusions to be drawn are obvious, viz. :—

(1,) Keep the surface soil and subsoil clean in the neighbourhood of dwellings by abolishing all middens and privies which, by leaking, may pollute the surrounding earth.

(2,) Do not bury typhoid stools without careful disinfection previously.

Flies have been suspected, and their guilt proved to the satisfaction of, at least, certain American medical observers, as the carriers of typhoid or enteric contagium—a likely theory when the experiments with cholera germs are remembered.

In connection with enteric fever, it may be mentioned that the beginning of 1898, saw the end of the Maidstone epidemic and since then a special Local Government Board enquiry has decided that the epidemic was practically caused by the pollution of the water supplied from the Farleigh sources by the Maidstone Water Company. It is true that defective drains and sewers played a small part in extending the disease through pollution of the soil underlying the town, but the chief cause of the epidemic was the polluted water supply, showing once more the importance of sanitary authorities making careful periodical inspection of the sources of a water supply, in addition to taking samples for analysis chemically and bacteriologically. Despite the finding of the Board, the ratepayers of Maidstone have voted *against* the compulsory purchase of their water concern by the Sanitary Authority !

The question of London's Water Supply appears to be crystallising, as the County Council have decided during the past year to promote—

(1,) A Bill for the purchase (compulsory, if necessary,) by the Council of the Undertakings of the eight Metropolitan Water Companies.

(2,) A Bill to empower the Council to bring an *additional* water supply to London from the watersheds of the Wye and Towey.

The Smoke Nuisance and its Abatement.—A great deal has been heard during the last year with respect to the smoke nuisance, which was increased during the Welsh coal strike—second and third quality fuel being used by manufacturers. In London, this was especially the case owing to the County Council taking up the matter somewhat vigorously but (in the opinion of some) unwisely. Under the Public Health (London) Act, 1891, the County Council has power to declare a Metropolitan Sanitary Authority in default if in their (the Council's) opinion such Authority has neglected to carry out its statutory duty in regard to nuisances (including smoke). The result has been a crop of more or less ill-advised summonses—ill-advised as shown by the fact that in several cases the magistrates have dismissed them or adjourned them *sine die*. It appears, however, that the law is simple —a chimney (not being the chimney of a dwelling house) sending

forth black smoke in such quantity as to be a nuisance is a nuisance—no question arising as to machinery (*e.g.*, boilers fitted with special smoke prevention appliances), or kind of fuel (*e.g.*, best Welsh smokeless coal), used.

The usual results have followed this activity against smoke, viz., the wholesale re-introduction of smoke prevention (so-called) appliances, whose name is legion and whose *practical* utility is, in most cases at least, difficult to find.

From the number of different patents applied for, it is clear that the perfect, practical smoke consuming or prevention appliance is yet to be introduced. Mention may, however, be made, before leaving the subject of coal, of the Carl Wegener System of burning coal without the production of smoke. The coal is introduced into the furnace in a finely powdered condition and carried into the furnace by means of the draught of the chimney, thereby attempting complete combustion of each particle of coal by supplying a liberal amount of oxygen. The grate and fire bars of the ordinary furnace are removed and instead of the door there is fitted an iron plate, through which an air tube passes. As the air is drawn into the furnace, it meets a falling stream of pulverised coal, and carries it into the furnace, where it is completely consumed. This system has been practically (and with success) tried by the Grand Junction Water Works Company at their pumping station at Hampton.

The question of coal dust firing has engaged the attention of the Prussian Commission on Smoke Abatement, it being stated in evidence that this method is the only one by which complete absence of smoke is obtainable by all the usual classes of coal employed for industrial purposes and without concurrent economical advantages. There is a uniform supply of dust fuel, the working not depending upon the greater or less careful attention of the stoker or stokers concerned, with the result that there is complete absence of smoke nuisance. The problem of the successful grinding of the coal to dust may be considered as solved. Coal dust fireing is not a smoke consuming appliance, for there is no production of smoke for subsequent consumption.

The International Congress on Hygiene.—The Madrid Congress adopted during the year the following principles with respect to the sanitary conditions of towns and dwellings on the report of an International Committee appointed by the previous (Buda-Pesth) Congress :—

(1,) The immediate removal of all foul matters and the copious supply of a pure water.

(2,) Paving of streets to be smooth and impervious as far as possible, to facilitate cleansing and also to prevent contamination of the subsoil.

(3,) Special precautions to be taken in the construction of houses to prevent the access of ground air and moisture to the floors and walls.

(4,) House drains and sewers to be constructed so as to avoid

stagnation of contents, and to secure rapid flow; impervious to liquids and gases; freely ventilated; have drains disconnected by siphon traps from sewers.

(5,) Streets as wide as possible compared with height of houses, as may be locally necessary, and each inhabited house to be well lighted, with access of air from at least two sides.

Ventilation of Sewers.—This important subject has been much discussed at congresses, etc., during the year, but nothing has been decided to prove of ultimate practical utility. An important Conference on the subject was held at the London County Council Offices with a view to a uniform system being adopted, if possible, for dealing with complaints of offensive emanations from gratings connected with both local and main sewers.

The following resolutions were passed :—

(1,) That the closing of sewer ventilators in response to complaints increases the general evil, the diminution of which is to be attained by the multiplication of the ventilators at regular, frequent intervals.

(2,) That in connection with any interceptor hereafter fixed on a main house drain it is advisable to carry up a ventilating pipe from the sewer side of the interceptor, up the front, side, or back of the house, to the satisfaction of the local sanitary authority, and that the outlet drain from the interceptor shall not be flap-trapped in sewers, unless required by the local sanitary authority.

(3,) That pipe ventilators up buildings, or otherwise where possible, should always be adopted, in addition to surface ventilators

THE EDITOR'S TABLE.

A Review of New Inventions, and Pharmaceutical and Dietetic Articles.

MEDICAL AND SURGICAL APPLIANCES.

Air Cushions (Japanese).—The Japanese air cushions (*Figs.* 106, 107), as sold by Messrs. S. Maw, Son & Thompson, can claim for themselves two very great advantages over any other form of air cushion at present upon the market. Firstly, they are exceedingly cheap; and, secondly, they can be folded up into a very small space, so as to be carried about in the pocket if necessary. The accompanying illustrations give a fair idea of the relative sizes when folded, and when blown out. On account of their cheapness they are specially recommended for use in isolation hospitals, or during the treatment of infectious cases in private practice, since, when once infected, they may well be burnt without any serious loss to the owner. The round cushions are 17 in. in diameter, and are sold for 1/8 each, whilst the square are 18 in. × 21 in., and are sold for 2/- each.

Fig. 106.

Fig. 107.

Antiseptic Handkerchief.—Messrs. Arthur & Co., of 69, Berners Street, W., send us some Japanese handkerchiefs, which are especially to be commended for use by those who suffer from tubercular disease, or other infectious disorders. They are made of paper, impregnated with phenol, pumiline, etc., and are intended to be burnt after use. Of similar material, and very likely to be much in request by laryngologists, are some tongue cloths, issued by the same firm. Their value is obvious, as a fresh "cloth" can be used for each patient whose tongue it is necessary to grasp. They cost 3/3 per 1,000, and so are economical.

Atomiser.—Mr. Frank A. Rogers, of 327, Oxford Street, London, has introduced an atomiser for the nose (*Fig.* 108), which is so compact that it can easily be carried in the pocket, and is at the

same time a very perfect instrument for ordinary use. We believe that in cases of post-nasal catarrh, it is far better to use an atomiser of this kind, and encourage the patient to draw the fluid through to the pharynx and expectorate it, than it is to use the ordinary nasal douche, which is not free from danger, and is also a less effective means of clearing the naso-pharynx.

Mr. Rogers has also introduced a nasal insufflator for introducing powders into the nose on the same lines.

Fig. 102.

Clinical Reports.

Case Paper.—We have for a long while been anxious to secure a good form for taking cases. Failing this we have made some efforts to devise one. We have not succeeded, because of the natural difficulty in arranging one which would meet all varieties of cases. Thus the paper for a case of phthisis requires considerable space for the respiratory organs, while a single line will give all that is necessary concerning the nervous system. In a case of paralysis the opposite condition is true. It is for this reason that we have been particularly pleased with a case paper which has been designed by Drs. J. K. Couch and E. le C. Lancaster. It is of the size of a piece of commercial note-paper. On the first page there is a definite place for a brief description of the general condition of all the organs and symptoms, but the opposite page is blank; so that it is possible to enlarge upon any one of the conditions by simply running the description across to this page. We have thus a case paper with a natural elasticity, adapting itself to any class of disorder which we want to describe. But further economy of space and description is provided by the fact that there is on the back of the paper a perfect atlas of outline diagrams for graphically recording cases. There are, in fact, twenty-two diagrams of the body and parts of it, so that the description of symptoms and local conditions is very much simplified. As only a few of these diagrams are wanted in a particular case, the rest of the space can be used for describing the conditions marked on the diagram used. We are quite certain that nothing has hitherto been produced which so facilitates the taking of cases, and we have at once adopted it in our own hospital and private practice. Messrs. J. Wright & Co., Stone Bridge, Bristol, are the publishers.

Messrs. Reynolds & Branson, Ltd., of Leeds, send us the three following Charts:—

The Medical Recording Calendar is designed principally for use during the treatment of menstrual irregularities, but is equally useful

in treating epilepsy, nocturnal incontinence, ague, or any periodic symptom. It also serves to record weekly weighings or the passage of bougies, etc. The patient's part is reduced to making a cross on particular days, a coloured pencil being best for this purpose.

Surgical Chart.—The importance of a definite knowledge of the condition of the kidneys in patients about to become subjects of surgical operations, has caused Mr. Mackenzie to design a chart which shows the facts of the condition of the urine and of the circulation, in such a way that any urinary or circulatory contra-indication to surgical operations may be seen at a glance.

Weight Chart.—This is for recording weekly weighings in infancy. Such a weight chart is of great use and interest in the first two years of life. It is an invaluable guide in questions of food and general hygiene. The weight curve is peculiarly sensitive to any slight departure from health, and has been known to foreshadow the outbreak of measles by a depression during the incubation period. The chart is particularly useful for patients brought for malnutrition due to errors of diet.

Catheter Dish (New). *H. de Paiva B. Veale, L.S.A.*

The accompanying illustration (*Fig.* 109) shows a dish which I have designed for the reception of flexible catheters in daily use. It consists of an elongated narrow vessel, furnished with an overlapping lid, and it is sufficiently long to admit a catheter of ordinary length without flexion being necessary. The catheter rests on two transverse ridges attached to the bottom of the dish, so that the antiseptic solution, with which the dish is filled, surrounds the instrument. The dishes will serve for all forms of flexible catheters, or bougies, and may also be used for drainage tubes. They are manufactured of iron (enamelled ware) and porcelain, and may be obtained from Messrs. Reynolds & Branson.

Fig. 109.

Catheter Stand.—This has been specially designed for use in female hospital wards (*Fig.* 110). It consists of a heavy plate-glass slab with nicely rounded corners, having a ½-inch frosted strip running along the whole length of it, upon which the patient's name may be easily written with a pencil. The ringed support for holding the six strong glass test tubes is made of metal thickly tinned, so that the whole apparatus is quite aseptic. We like

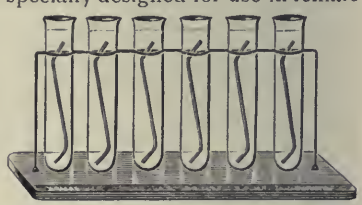

Fig. 110.

this stand very much, and should like Messrs. Reynolds & Branson to make a test-tube holder from the same model, making the tubes smaller and giving more frosted ground for writing names and particulars of contents beneath them. It would be useful both for the chemical laboratory and for urinary analysis.

Clinical Thermometers.—Messrs. Maw, Son & Thompson have devoted much attention to that little difficulty which we all experience sometimes in shaking down the index after the temperature has been

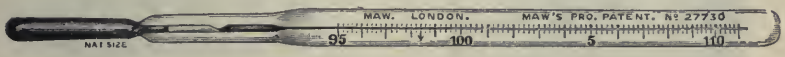

Fig. 111.

taken. By an improved method of manufacture their new thermometers (*Fig.* 111) shake down with the most gentle jerk of the hand, and thus not only is time saved, but the risk of breakage is avoided.

They have also issued a thermometer case (*Fig.* 112) for the present instruments. This has a small chain attached, and by swinging the case round at the extremity of the chain, the index is lowered by centrifugal action. The chain has a hook at the other end to facilitate attachment to the belt or chatelaine of the nurse.

Fig. 112.

Fig. 113.

Commode (New, Cheap).—This is a practical suggestion from a district nurse. The illustration (*Fig.* 113) explains itself. The commode is made of enamelled iron, and the moveable seat is of wood. Messrs. Reynolds & Branson, of Leeds, manufacture the article.

Drainage Tubes (Improved).—These are made of the best red rubber, and put up half a dozen together, of assorted sizes, in carbolised solution in glass tubes. The novelty consists in the rounded ends, rendering their introduction into a wound easier and simpler than the old plan with the square-cut ends. Messrs. Ferris & Co., Bristol, supply this convenient form of tube, the advantage of which will be readily appreciated.

Douche (Hot and Cold).—This is a simple arrangement by which hot and cold water can be applied as a vaginal injection, or for any

other purpose. The drawing (*Fig.* 114) will explain its use, and it will be easily seen that by the alteration of a single tap, hot or cold water can be turned on at will. Messrs. R. Sumner & Co., of Liverpool, have sent this to us.

Fig. 114.

Garner's Improved Barnes's Bags.—This is a horned or crutched addition to the ordinary Barnes's bag (*Fig.* 115). It frequently happens that the Barnes's bag slips into the uterus, and, to obviate this, an additional inflated crutch has been suggested by Dr. Garner, and, we believe, answers admirably. The price is the same as the ordinary Barnes's bag, namely, 8/6 the set of three, including inflator. This has been introduced to our notice by Messrs. R. Sumner & Co., Liverpool.

Fig. 115.

Fig. 116.

Glass Tank for Dressings.—This is an oblong glass jar with a lid to it (*Fig.* 116). Dressings put into it are maintained perfectly aseptic, and they can be seen all the time. It is just the thing for the hospital ward or the surgery. "Keep everything in sight" is the safest rule, whether it be dressings or instruments. Messrs. Reynolds and Branson produce these jars at small cost.

"Happy Thought."—This name has been given to an arrangement of bamboo and netting, which is put round a child's cot, so

raising the sides of it, that, although the child may stand up and play, he cannot tumble over the sides. The child is as safe as a monkey at the Zoo. Messrs. Geo. Gale & Sons, Dominion Works, Birmingham, are the manufacturers.

Holdfast Colic Belt.—This is a distinct novelty produced by the Jaeger Co. The "belt" is of their well-known all-wool material, and owes its elasticity to the texture. It differs from an ordinary colic belt in the fact that it has perineal bands woven as part of the "belt," which is drawn on from below. It is therefore always in its proper position, and does not ride up as such "belts" are apt to do.

Holophane Globe.—This is intended for incandescent gas, electric light, and oil lamps, *not* for gas lights with naked flame. Its object is at once to increase the quantity of light emitted, and to diffuse it. The method by which this is accomplished is a novel application of optical principles which renders these globes of great scientific interest as well as a direct gain to the comfort of the community. The globe may be described as built up of small prisms, each one of which collects light and diffuses it, so that no direct ray can reach the eye. It might be thought from the thickness of the glass that there would be loss of light. It is only necessary to compare it with the ordinary globe to convince oneself that the quantity of light diffused is much greater. We predict for these globes a great and deserved success, and we confidently recommend them to our readers. They are manufactured by Holophane Limited, 91, 93, 95, Queen Victoria Street, E.C.

Hypodermic Syringe, with Exchangeable Aseptic Steel Needles.—A constant trouble is experienced by needles of syringes getting clogged, blunt, and otherwise damaged. A syringe has been brought under our notice by Messrs. R. Sumner & Co., in which the needle, which is independent of the nozzle, can be instantly fitted to the instrument. The case contains half a dozen needles, and fresh supplies can be had at a merely nominal cost. This is a distinct improvement in hypodermic syringes, the needles themselves being much finer than those ordinarily supplied.

Inhaler (Clover's Modified). *J. Wilson Smith, M.D.*

In the dome of the ether chamber are two circular apertures on either side, into which are screwed two watch-glasses or 'windows' (A A), allowing a view of the interior, so that the quantity of ether in the chamber can be easily seen at any time during an administration. To facilitate thorough cleansing and to afford a good light in the ether chamber, the interior surface is plated and polished in the same manner as the exterior. The glass "windows" fit accurately, so as to prevent any leakage of ether in whatever position the inhaler be placed. The water jacket, instead of being closed entirely, has an aperture with a detachable screw-stopper (B), so that it may be filled with warm water before the inhalation in cold weather; and the jacket may be quickly emptied

and re-filled, if required, during a long operation. In the distal end of the bag is an aperture (E) covered by a metal cap, the rotation of which closes or opens a slot for admission of air into the bag. It will be found that by keeping the slot only slightly, but continuously, open (after anæsthesia has been induced), cyanosis is prevented, and quiet anæsthesia continues. In weakly people, air may be admitted continuously from the first. By taking off the cap the bag can be cleaned out with a mop after administration.

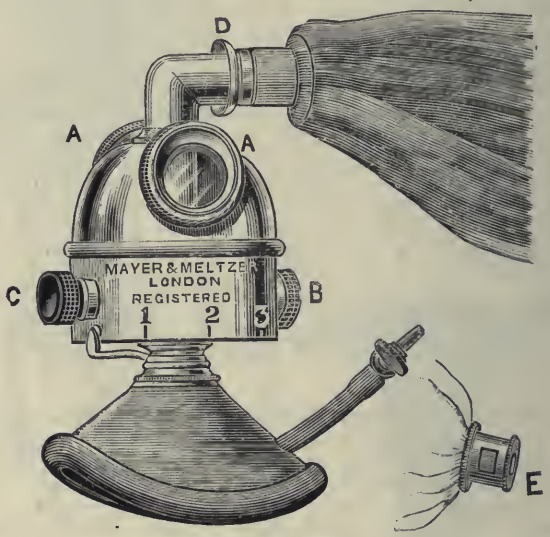

Fig. 117.

Messrs. Mayer & Meltzer have constructed for me an inhaler of this model (*Fig.* 117), and also one with an air-way throughout fully equal to the tracheal sectional area, *i.e.*, double that of the ordinary Clover's inhaler, with the result that the sound of "stridor," observable in the old apparatus during administration, is practically abolished, the breathing being quiet and "breezy" in character. I have used this latter inhaler many times, and am well satisfied with it.

Inhaler (Improved Ormsby). *C. Carter Braine, F.R.C.S.*

The principal defects of the Ormsby Inhaler are, the smallness of the air-valve; the cage being composed of galvanised netting is compressible, and so becomes more and more conical with use, and hence obstructed, allowing less and less room for the sponge; and, moreover, it cannot be thoroughly cleansed with facility. With the object of overcoming these defects, I have had the inhaler depicted in the wood-cut constructed (*Fig.* 118, and have been using it entirely for over twelve

months with gratifying results. It is constructed throughout of nickel-plated metal; all parts are easily accessible; there is no place where saliva, mucus, or blood can lodge, and it can be rendered aseptic by boiling if necessary. The air-valve is a free one, and numbered with figures as on Clover's inhaler, so that at a glance the relative patency of the valve can be seen. The respiratory bag is of large capacity, being twelve inches in diameter. The cage bearing the sponge and respiratory bag fixes on the facepiece with a bayonet catch, and is instantly detachable for cleansing purposes. An extra all-metal dome has been constructed, and freely perforated with air-holes at its extremity, and which likewise fits on to the facepiece with a bayonet catch, taking the place of the ether dome. I have found this attachment very useful for the administration of the A.C.E. mixture, or for ether, when plenty of fresh air is necessary, as with young children and the very feeble. I am indebted to Mr. J. H. Montague, of 101, New Bond Street, London, W., for the great pains he has taken in the construction of this inhaler.

Fig. 118.

Inhaler (for Nitrous Oxide Gas). *George Flux, M.D.*

I have devised a method for the administration of nitrous oxide gas without the use of a closed mask or of valves. The procedure is as follows: A napkin is adjusted about the patient's face so as to enclose the nose and mouth in a cup-like cavity completely open at the top; into this cavity a stream of gas is allowed to flow, and is thus easily inspired at the normal atmospheric pressure, and thoroughly mixed with as much air as the patient requires. At each expiration the patient blows the inhaler nearly empty, and on inspiration breathes both fresh air and and fresh gas. The expenditure of gas for a single administration by means of a folded napkin varies from 8 to 10 gallons. As the gas flows through the fabric of a napkin with great rapidity, and as there are objections to folding and fitting a napkin for each patient, I have had some inhalers made of an impervious material and of a shape fit to use at a

moment's notice, the essential feature in their construction being their complete openness to the air. With these inhalers (described below) the expenditure of gas for an adult is about 7 gallons for a single uncontinued administration. With suitable modifications in the shape of the inhaler, this method can be employed with the patient sitting up or lying down, whether it is desired to breathe through the mouth or nose. The first effect of the anæsthetic given in this manner is to send the patient comfortably, quietly and quickly to sleep; he then passes into a state of complete anæsthesia without any sign of cyanosis, jactitation, stertor, or excitement.

Fig. 119.

Persons who have taken the gas in this way for experiment, as I have, assure me that they are scarcely aware of taking anything, are completely free from any respiratory embarrassment whatever, and feel no effect afterwards. The inhalers, as illustrated (*Figs.* 119, 120), are merely receptacles into which the gas can be poured; they are not attached to the gas apparatus, and have no mechanical parts whatever. I am indebted to Mr. J. H. Montague, of 101, New Bond Street, London, for the manufacture of this

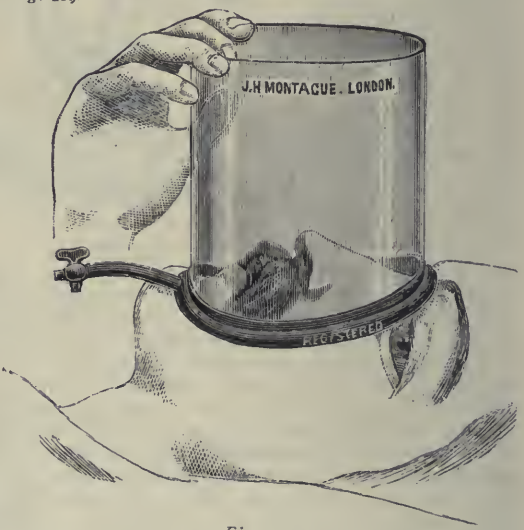

Fig. 120.

inhaler, and also for his patient and valuable assistance in carrying out my designs.

Instra (The).—This is a pretty German silver case, which can be carried in the pocket or the muff, and which diffuses a genial warmth. The warmth is created by a special fuel, which when lighted will burn for three or four hours. But how about smell, dust, smoke and danger of fire? None at all. It is this which makes the invention so handy and so effective. Sir Wm. Mackinnon, late Director-General of the Army Medical Department, has been using one for some time, and is charmed with its usefulness, and regrets that the troops did not have them in the Crimea.

Insufflator.—Under the name "Laryngeal Auto-Insufflator" an instrument is made with a straight stem instead of being curved at the extremity. It is considered by the inventor that this is easier for the patient to introduce himself than the ordinary insufflator. It is made by Messrs. Wm. Wood & Son, 42 and 44 Cross St., Manchester.

Insufflator, with Glass Shield.—This is a very handy little instrument for insufflating diphtheritic throats, which has been introduced by Messrs. R. Sumner & Co., Liverpool. It is furnished with a glass shield, which enables the operator to see the throat thoroughly, while he is protected from any matter which may be expectorated by the patient during the act of coughing. It costs 2/6.

Leeds Sheeting.—This is very superior to mackintosh sheeting, and, although more expensive, has the advantage of being more durable. It is not injured by ether, chloroform, dilute acids or alkalies. The same piece can be used repeatedly, as it may be rendered aseptic by boiling, which is not the case with any other sheeting. It costs 8/- per yard, and is 5 feet wide. It is introduced by Messrs. Reynolds & Branson, Ltd., of Leeds.

Microtome (The Students').—This microtome (*Fig.* 121) is used in the Leeds Medical School, and has been found extremely useful to

Fig. 121.

students in physiology, botany, etc. It is arranged to slide on a glass plate, on which the substance to be cut is fixed after embedding. Sections of any degree of thickness may be cut by raising or lowering

the screw, and the microtome is arranged so that any razor may be clamped to it. Messrs. Reynolds & Branson are the manufacturers.

Mysterious Envelope (The).—This is a large envelope, empty; upon it is written in *large* letters, "The Lunar Envelope." Down in one corner is written in French, German, Italian and English "Please, burn this." We did so, and nothing remarkable occurred. Then we turned to Messrs. Reynolds & Branson, of Leeds, for an explanation.

This is how it happened. It began with the fact that ladies use sanitary towels, they also travel, but they do not always have fires in their rooms. From these two positives and one negative the envelope was evolved. They leave the envelope behind them, and in it they have put the sanitary towel. The chambermaid reads "The Lunar Envelope," and naturally supposes that it is some gift kindly left for her. Before she opens it she may, or she may not, see the direction, "Please burn this." We do not believe that Messrs. Reynolds & Branson started out to make the chambermaid sorry. They were pleased with the happy name "Lunar," and gave it special prominence. They are so eminently practical in all they do, that we are sure they will print the directions in large type, and put the name on the back or down in the corner. Then all trouble will be avoided.

Obstetric Case.—This case (*Fig.* 122) has been constructed by Messrs. Reynolds & Branson, Ltd., of Leeds, at the suggestion of Mr. Herbert Rowe, M.R.C.S. It is made throughout of block-tin, it is unlined, and, as far as possible, the corners inside are rounded off to facilitate cleaning the interior. The instruments, etc., are held in position by metal partitions and clips, and, if the bottles are removed, the case with its contents *in situ* may be boiled or sterilised in any other convenient way. Its shallowness and general shape allow it to be carried on a bicycle, but it is equally conveniently carried in the hand. Its outward form can, however, be made to suit individual ideas, but it is suggested, for ease of cleaning, that the depth be not materially increased; the list of instruments it contains can be added to or diminished according to requirements. The case illustrated contains five bottles and fourteen instruments (including full-sized forceps and a transfusion apparatus).

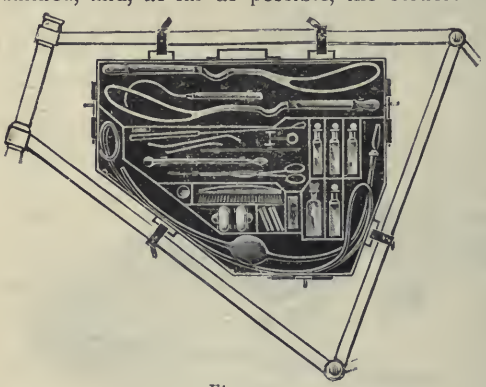

Fig. 122.

Patent Pipettes.—This is a new and very handy arrangement (*Fig.* 123), especially useful for eye work, which Messrs. R. Sumner & Co., of Liverpool, have introduced. It is graduated in minims, and has an additional piece of india-rubber tubing at the end of the stem, which

Fig 123.

will prevent any damage being done when used by the patients themselves, and it also ensures absolute medication, because the exact number of drops can be applied that the physician prescribes. These cost 3/6 per dozen.

Pressure Forceps and Needle Holder (combined).—This is a very practical surgical tool. It acts as a pressure forceps for securing arteries, but is also furnished with grooves in the blades, which enable it to be used as a needle holder, and will accommodate needles of different sizes. Messrs. R. Sumner & Co. are the makers, and it only costs 4/-.

Scissor-Forceps. *H. de Paiva B. Veale, L.S.A.*

The accompanying woodcut (*Fig.* 124) shows an instrument which I have found most useful and convenient in the routine work of house-surgeon and dresser. It combines in one the functions of surgical scissors and dressing forceps, and it may also be used as an emergency "clip" and sinus dilator. The blades of a medium-sized pair of dressing forceps (Spencer Wells' pattern) have been made broader, and furnished with scissor edges between the terminals and the axis. At the same time a rib has been left on the unsharpened edges, which renders the instrument usable as a small sinus dilator. It can be obtained with or without detachable blades, is easily cleaned and sterilised, and is a convenient size for the pocket. It is exactly five inches in length. The fact that the number of instruments on a chatelaine may now be reduced will recommend it to nurses; and house-surgeons and dressers will recognise the advantage of using a single instrument that can replace, without inconvenience, the necessity for carrying two. I believe the cost is little in excess of an ordinary pair of scissors. The "Scissor-forceps" are manufactured by, and may be obtained from, Messrs. Reynolds & Branson, of Leeds.

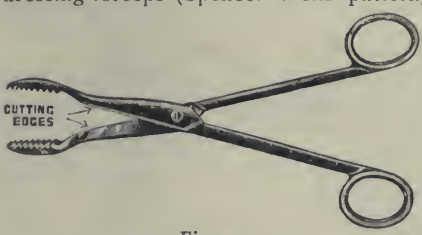

Fig. 124.

(We can highly recommend this invention; it fulfils every purpose described by its author, and is excellently made.—Ed. "Med. Ann.")

Screen (Aseptic Clinical). *H. de Paiva B. Veale, L.S.A.*

In many hospitals, where the importance of aseptic furniture in the theatres and wards has been recognised, the clinical screen, notwithstanding its frequent proximity to patients' bedsides, appears to have hitherto taken no part in the general improvement. Dust is still disturbed from the wooden ledges as the old screens are carried from bed to bed, and the red flounced draperies, which have been for years the ward sister's pride, remain unboiled, "because the colour runs." The following is a description of a new aseptic screen, which has been made at my suggestion :—

The frame is made of rigid brass tubing, nickelled or otherwise, and is composed of four sections, each section measuring 5 feet by 3. All angles are rounded off and strengthened by a special device, which does not add materially to the weight. The hinges are silent and double-acting, cannot get out of order, and have no crevices in which dust can lodge. White rubber discs are screwed into the bell-shaped terminal expansions of the frame uprights, and on these feet the screen rests. The rubbers render placing the screen round a bed a *noiseless operation*, and effectually prevent any slipping or scratching on the polished surface of the floor. From upwards of fifty varieties of material I have selected one as the best for all purposes. It is unaffected by boiling in 1 in 20 carbolic acid solution, and can be scrubbed with ammoniacal soap without detriment. After being subjected to this treatment it takes a smooth surface with an iron, and does not change colour. The material is attached by a novel method to the frame, and it hangs without creases. The screen is neat in appearance, and its entire weight is only about eighteen lbs. Messrs. Reynolds and Branson, Ltd., are the manufacturers.

Fig. 125.

Sparklets.—A new and important method of charging water or other liquids with carbonic acid gas has been recently introduced, and may find many practical uses in medicine. A sparklet (*Fig.* 125) is a small metal capsule containing sufficient carbonic acid gas to charge an ordinary soda water bottle. A special bottle is provided, and when this is nearly filled with water a sparklet is introduced, and by a simple mechanical contrivance the gas is liberated from the sparklet and the appliance is ready for use. We have used one of these appliances for some months, and it has proved invaluable to us. As a means of aërating milk for invalids it has a distinct advantage over soda water, as the quantity of water, if any, added to the milk can be regulated at will ; the amount of effervescence does not depend upon it. In out of the way places it has the supreme advantage of allowing soda water to be immediately prepared when wanted, with no empties to remove. The sparklets will keep for any length of time and in any climate. From personal experience we can

recommend this simple appliance, which can be purchased with a dozen sparklets for a few shillings. It can be obtained by any chemist, or from Aërators Limited, Broad Street Avenue, E.C.

Spittoon for Phthisical Patients.—Messrs. Ferris and Co., Bristol, send us one of these (*Fig.* 126) after the pattern devised by Dettweiler. It is a neat pocket flask of blue glass, about 4 inches long by 2 inches wide. The top and bottom are arranged to close hermetically, and are in nickel plate. The pressure of a spring causes the top to fly open to receive the expectoration, and the whole is readily taken apart for cleansing. As stated in our last issue, the contrivance is excellent except for its weight, and we wonder no one has provided us with one made wholly of aluminium.

Fig 126.

Splint Padding.—Messrs. R. Sumner & Co., have introduced a new antiseptic splint padding. It is covered with gauze, and is ready for instant use. They supply three yards for 2/6, so that it will be found as economical as it is useful.

Steriliser. *Louis Cobbett, F.R.C.S.*

Surgeons who prefer to use sterile rather than antiseptic dressings will doubtless welcome an apparatus for use in the operating room.

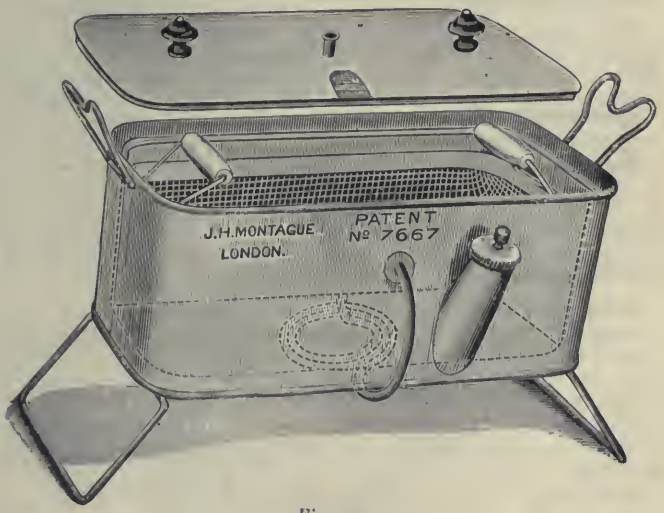

Fig. 127.

which not only sterilises cotton wool, bandages, etc., quickly and efficiently, but leaves them dry and pleasantly warm. The apparatus

consists of an inner chamber, intended for the materials to be sterilised. This is surrounded by a water jacket, heated by a flame below. The steam generated in this jacket is conducted through a coil of copper tubing (the super-heater) placed in contact with the flame immediately below the body of the apparatus, and is thereby raised to such a temperature as renders it not only quite dry, but capable of drying that with which it comes in contact. This dry, super-heated steam is then admitted to the inner chamber, where it rapidly penetrates and sterilises any dressings, etc., which may be within.

Some experiments which I made with an instrument constructed on principles similar to those of the steriliser shown (*Fig.* 127) were very satisfactory. Non-sporogenous micro-organisms, viz., *Bacillus prodigiosus*, *B. typhosus*, *B. diphtheriæ*, *B. coli communis*, *Spirillum choleræ* and *Staphylococcus pyogenes aureus* were destroyed in ten minutes, though they were enclosed within a considerable quantity of rather tightly-packed cotton wool. Dust-covered cotton wool similarly enclosed was also sterilised in ten minutes. Spores of *B. subtilis*, contained on threads, enclosed within a tightly-rolled bandage, which was itself surrounded by half a pound of cotton wool, required an exposure of fifteen minutes to effect sterilisation. The instrument used by myself had several minor defects, but I believe these have been remedied in the present apparatus. The maker is Mr. J. H. Montague, of 101, New Bond St., London.

Sterilising Catgut. *Prof. A. W. Mayo Robson, F.R.C.S.*

The catgut is wound *loosely* round an elongated glass reel (*Fig.* 128) endwise, made for me by Messrs. Reynolds & Branson, Ltd., of Leeds. Several of these glass reels are then introduced into a *metal cylinder*, the cap of which screws on, and after more xylol (boiling point 140°C) than is sufficient to cover them has been poured in the cap is adjusted. The whole is then put into boiling water in the steriliser, and allowed to remain for from twenty minutes to half an hour. The reels are then at once removed, and kept in a 5 per cent. carbolic acid solution, or in methylated spirit, the latter being preferable, as any aqueous solution tends to cause catgut to swell.

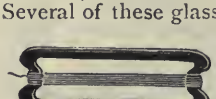

Fig. 128.

Stockinet Bandaging.—Those who are familiar with the all-wool material of the Jaeger Co. will see how easily its natural elasticity lends itself to the construction of a bandage for varicose veins and swollen limbs. The material is soft and porous, and owing to its elasticity it is unnecessary to make reverses in applying it. We believe that there is nothing better in the market for the treatment of such cases, and we shall certainly employ it when such bandages are indicated.

"Stowaway" Suspensory Bandage.—The Domen Belts Co. have introduced a useful novelty in suspensory bandages, which will be much appreciated by men who use these articles when cycling and taking exercise of all kinds. The waistband is made of a pure undyed

woollen material, and is, therefore, under all circumstances, safer for wear than the cotton ones usually supplied, especially when the body is perspiring. The scrotum bag is made of silk net, and is delightfully soft and cool; the bandages can also be supplied with the fine wool stockinet bag. They can be obtained from the Jaeger Co., 95, Milton Street, London, E.C.

Tell-Tale Clock.—In order to meet the requirements of asylums or other places where night attendants are employed, Messrs. Gent and Co., Faraday Works, Leicester, have introduced a clock which will automatically record the visits of the attendant. The value of such arrangements has been amply proved in the management of large commercial concerns, and a simple appliance adapted for the purpose of asylums will be appreciated.

Tissue (New Absorbent).—The Liverpool Lint Co. have brought under our notice a new absorbent tissue which they are now manufacturing. It appears likely to meet the requirements of the profession, and is prepared with that care which marks the manufactures of the Company.

Truss (Draper's Adjustable).—This truss (*Fig.* 129), invented by Mr. Draper, M.R.C.S., etc., of York, consists of a light, softly-covered body spring, which must fit the patient accurately, and a small, light, flexible hernia pad. No under-strap is necessary. The most special feature, however, of the truss is that the hernia pad is so fixed to the body spring that by a simple mechanical contrivance the obliquity of the pad may easily be altered and refixed, either by the patient himself or by the medical attendant, so that the annoyance and inconvenience of having to send a truss to the makers for alteration is altogether avoided. This is a matter of no small importance with fidgety patients. The truss may be worn with comfort by the most sensitive patients, and with perfect safety by those who take active exercise, such as cycling, riding, boating, etc. It is made by Messrs. S. Maw, Son & Thompson, of Aldersgate Street, E.C., in various qualities and at moderate prices, varying from 5/6 to 21/-.

Fig. 129.

Umbilical Truss.—Mr. Alfred Cox sends us a new umbilical truss (*Fig.* 130), the advantage claimed for which is that it is washable, and can, therefore, be kept perfectly clean and could be worn while bathing. This is true: but there is at least half a pound too much of it. It weighs, with strap, 17½ ounces. We are

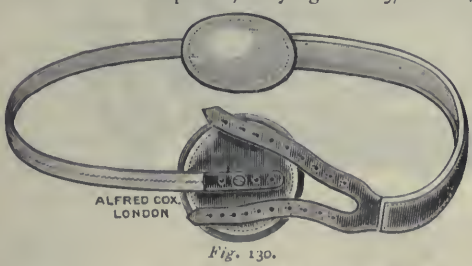

Fig. 130.

sure Mr. Cox will soon remedy this defect. Aluminium is cheap, and easily adapts itself to the purpose.

University Tourniquet (The).—This consists of a flat rubber band and steel fastener (*Fig.* 131). The flat rubber tourniquet was introduced by Mr. Pollard, and its advantage over a rubber cord lies in the fact that it does not constrict the deep tissues to the same extent, nor does it cause any abrasion of the skin. The whole instrument is very simple and cannot get out of order. It can be quickly applied and removed. The fastener merely consists of a metal plate with two slots, which holds the rubber at any point perfectly firm, and does not allow any slip. Messrs. Mayer and Meltzer are the manufacturers.

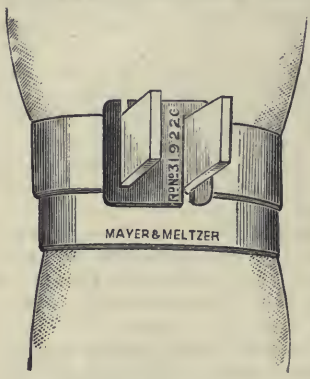

Fig. 131.

Vaccination.—Messrs. Ferris & Co., of Bristol, have introduced a small and most convenient hand-bag (*Fig.* 132) for the use of public vaccinators. It contains, in a handy and compact form, weighing no more than 3 pounds, everything apparently

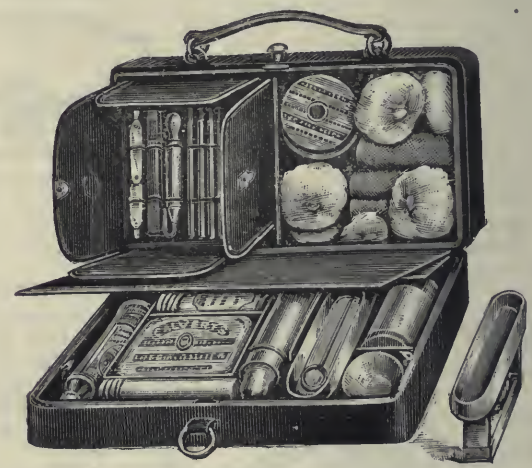

Fig. 132.

that can be required under the new Act. Amongst the contents are a neat nickel-plated vessel with spirit lamp, by means of which the lancets and vaccinator are readily sterilised, and the boric gelatin for

covering the vesicles may be melted in a capsule provided for the purpose, together with gauze bandages, carbolic soap, perchloride tablets for making solution, aseptic sponges, carbolic ointment, etc. Included in the bag is also a neat flat pocket case in limp leather, fitted with lancets, vaccinator, vaccine blower, lymph tubes, etc. To the public vaccinator the bag will be indispensable.

Messrs. R. Sumner & Co. have also brought out two vaccination cases—one at 12/6, which meets all the requirements of general practice, and another more elaborate, to meet the requirements of the public vaccinator.

The same firm also send us some strips of muslinette, which is a waterproof material that can be rendered thoroughly aseptic by boiling, kept in antiseptic fluids, and yet does not lose its waterproof properties. Several of the public vaccinators are adopting strips of this material to put over the arm immediately after vaccination, and fastening it down by a piece of tape plaster. We understand from them that it has been highly successful. This does away with the need of putting antiseptic fluids, such as have been recommended, on the vaccinated arm.

Vaccine Expeller.—A decided novelty just introduced by Mr. Montague, of 101, New Bond St., W., is a vaccine expeller (*Fig.* 133). The capillary tube containing the lymph is first introduced into the mount, which is made of soft india-rubber, and the upper end broken off. It is then drawn through to within ½ inch of the lower hole, and the other end of the tube broken off. Now by placing the thumb over the upper opening, and holding the mount between the first and second finger and compressing, the vaccine is immediately expelled. The operation is much simpler in practice than it looks in description, but the illustration given will explain it. The appliance can be sterilised, and is approved by the Local Government Board. It is a very inexpensive addition to our wants, but one which will be valued.

Fig. 133.

Ward Locker.—Rapid strides have lately been made in the manufacture of hospital furniture. Messrs. S. Maw, Son & Thompson are come to the front with an aseptic ward locker (*Fig.* 134), which is intended more especially for the use of hospitals where the treatment of infectious diseases is carried on. It is a locker made

entirely of metal and glass, the metal portions being artistically enamelled so as to add to its elegant appearance. The drawer, as shown in the illustration, is made with a rounded base, so that dust and dirt can be easily removed, and the door of the cupboard beneath is so accurately fitted to the frame that it is almost impossible for any dust to find its way through. Notwithstanding the good qualities of this excellent piece of furniture, the makers have been able to produce it at a price which is within the reach of the very poorest hospital, viz., 35/-.

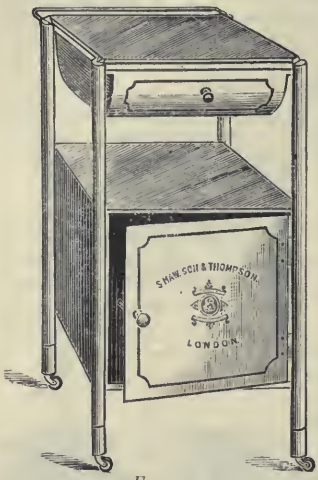

Fig. 134.

Wire Suture-Case.—To facilitate wire suturing, a case has been devised by Mr. T. S. Carter, of Leeds, containing in small compass all instruments for suturing fractures, whether of maxillæ, patellæ or long bones. It has been made to pattern by Messrs. S. Maw, Son & Thompson, and has been so arranged that the inside tray may be lifted out and its contents boiled in the steriliser without disturbance. The case contains bayonet-shaped drills, silver sutures of varying thickness, pliable needle, forceps, etc.

PROGRESS OF PHARMACY.

The majority of the new chemical substances come to us from Germany, and we admire the skill in scientific research which gives us a number of really valuable preparations. It is noticeable that the publications issued by the proprietors of these preparations seldom contain any mention of their cost, and as the prices of some are very high, our readers think that this fact should have been mentioned. We cannot do this in our present issue, but we shall adopt the suggestion in future notices.

Airol.—This is a compound of gallic acid with subiodide of bismuth represented by the formula :—

$$C_6H_2(OH)_3\,Coo\,Bi{<}\overset{I}{\underset{OH}{}}$$

The active phenolic groups of gallic acid are therefore free, and the iodine is attached to bismuth in a form detachable by water or secretions. All three components—gallic acid, bismuth and iodine—are therefore readily available in action, and to this peculiar combination no less than to the composition of airol, are its granulating

and healing qualities due. Airol is a greyish-green powder, free from odour and taste, and very light and voluminous in character, so that it can be dusted over about four times the surface covered by an equal weight of iodoform, and is correspondingly cheap. It is insoluble in water, alcohol, ether and the usual solvents, but in the presence of moisture, secretions and the like, iodine and gallic acid are gradually liberated, leaving an equally insoluble, but more reddish, compound. It is unaffected by dry air and exposure to light. Airol finds extensive employment in surgery, dermatology, venereal diseases, ophthalmology, gynæcology, laryngology, rhinology and otology. Mr. Hugo Lorenz, 7 and 8, Idol Lane, E.C., is the sole agent for this country.

Antisepticine.—We have already called attention to "Antisepticine," which is composed of thyme, eucalyptol, peppermint, gaultheria, and benzo-boracic acid, and has been proved very useful for internal and external asepsis. This year Messrs. R. Sumner & Co. have added to the "Antisepticine" preparations by making a dust powder, which is not only an excellent antiseptic, but a mild styptic and sedative, promoting rapid cicatrisation and granulation. It is sent out in a most convenient dredging bottle.

The same firm have also prepared "Antisepticine" pastilles. There are in each pastille 5 minims of "Antisepticine." These pastilles have proved efficacious for relaxed throat, bronchial catarrh, hoarseness, and whooping-cough.

Anusol.—Under this name the iodo-resorcin-sulphonate of bismuth, has been put up in the form of a suppository as a remedy for hæmorrhoids. It is highly spoken of by Dr. R. Zimmermann and others, and would deserve a careful trial, as anything which will cure this troublesome affection without operation will be welcomed by the profession. But the suppositories cost 6/- a dozen. Messrs. A. & M. Zimmermann, 9 & 10, St. Mary-at-Hill, E.C., are the agents in Great Britain.

Argentamin has this advantage over nitrate of silver as an application to the conjunctiva. It does not form a precipitate with sodium chloride compounds. It moreover possesses greater antiseptic properties, and penetrates deeper into the tissues. A solution of $\frac{1}{500}$ may be used to the eye without producing irritation. Dr. Josef Jusc, of Buda Pesth, used it in the form of pencilling, and prefers this method. Messrs. A. & M. Zimmermann are the British agents.

"Bromaurum" (Arthur), a combination of oxybromide of arsenic ($As\,OBr_2$) with bromide of gold ($Au\,Br_3$), and **"Hydraurum,"** the same with addition of $Hg_4\,Br_2\,O_3$, were first made in this country at the instigation of Dr. Stenson Hooker, of Hastings, by Messrs. Arthur & Co., 69, Berners St., London, who are still the only English makers of these preparations. Owing to the excellent results following the use of bromaurum (and hydraurum), imitations have been placed on the market; but some of these imitations do not contain the *oxy-bromide*, but are a mixture of bromide of gold with bromate and hypobromite

of potassium and arseniate of potassium. "Bromaurum" has been used with excellent results in epilepsy, morphia habit, and other disorders of the nervous system.

Charcoal and Pepsin Biscuits.—Messrs. R. Sumner & Co. have introduced some very palatable biscuits, composed of charcoal and pepsin. They are an excellent remedy in many forms of dyspepsia, especially that accompanied with flatulence.

Creosotal and Duotal.—The first of these preparations is a carbonate of creasote, and the second a carbonate of guaiacum. They have both been used in the treatment of tuberculosis, and form, perhaps, the best way of administering these drugs in such cases, because of their non-irritating effects. They are produced by the Elberfeld Co., who now have a department at 19, St. Dunstan's Hill, London, E.C.

Effervescing Brom Salt (Sandow's) is a preparation which deserves special attention. It contains the bromides of potassium, sodium, and ammonium in a most agreeable and pleasant form. The advantages of administering bromide in this way are that the saline taste is completely covered, and the sedative effect enhanced by the carbonic acid disengaged when the preparation is mixed with water. Sandow's Effervescing Brom Salt is most carefully prepared. It is well granulated, and after a brisk effervescence gives a perfectly clear and colourless solution. Each bottle contains a small measure, which when filled equals 45 grains of mixed bromides. The price is 1/6 per bottle of 15 to 20 doses. Messrs. Buchner, Schacht & Co., of 149, Houndsditch, London, E.C., are the British agents.

Egg Emulsion with Cod-Liver Oil.—This contains 40 per cent. of Ol. morrhuæ, the remainder being made up with egg and brandy into a perfect emulsion. It has a very agreeable taste, and is a capital remedy for consumption or for convalescents. It is made by Messrs. Parke, Davis & Co.

Ergot Aseptic.—In most elegant glass bulbs, hermetically sealed, Messrs. Parke, Davis & Co. have prepared doses of ergot for hypodermic medication. The dose is non-alcoholic and sterilised. It is concentrated, but said to be non-irritating. It is free from ergotinic acid, which depresses the heart, and from the extractive matters which cause irritation. We believe that if this preparation is used, every precaution known to medical science will have been taken to avoid any possible ill results from the injection.

Hæmatogen.—Hommel's hæmatogen contains: (1,) Perfectly pure hæmoglobin; (2,) The whole of the salts which are found in fresh blood; and (3,) The highly important albuminous constituents of the serum in a concentrated and purified form, without any trace of decomposition. It is not peptonised or predigested, for artificial digestion, whether it is accomplished by the action of acids and pepsin or by heat, is quite different from the natural process. It has been proved by Professor Neumeister, of Jena, and Professor Cahn,

of Strasbourg, that peptones, albumoses and peptonised preparations are not by any means absorbed directly, but are converted into albuminate before being absorbed. There is no doubt that artificial digestion brings about the decomposition of substances, which are of the highest importance for building up the tissues of the body. This is strikingly shown by the great success of Hommel's hæmatogen, in cases of rickets, scrofula, wasting diseases of childhood, etc., in which not only peptonised preparations, but cod-liver oil, iodide of iron, etc., had been employed without any benefit. We believe that this preparation deserves, and will receive, careful trial at the hands of the medical profession. It is introduced by Messrs. Nicolay & Co., 36 and 36a, St. Andrew's Hill, Doctors' Common, London, E.C.

Heroin.—This is the di-acetic ester of morphine. It forms a white, crystalline powder with a melting point of 171° to 172° C., almost insoluble in water, but easily soluble in alcohol. The principal advantages heroin offers, as against morphine, consist in the facts that it does not cause constipation and that its dose is much smaller. The blood pressure is not altered in any way, and, in consequence, persons with a weak heart and arterial system, who cannot well tolerate morphine at times, do not experience any disagreeable effects from it. It is well worthy of a trial at the hands of the profession. The Elberfeld Co., 19, St. Dunstan's Hill, London, E.C., are the manufacturers.

Hypodermules.—Mr. Frank A. Rogers, of 327, Oxford Street, has introduced under this name some very minute bottles with a slender neck, each of which contains a sufficient solution for a hypodermic injection. The injection is aseptic, and the dosage is absolutely accurate. It will be understood that this method has many advantages over solutions which tend to evaporate, and may become septic, or pellets which have to be dissolved before the injection can be given. The elegance of the hypodermule merits the highest praise.

Iodoformogen is a preparation of iodoform in combination with albumin, the iodoform contained being so closely bound up with the albumin, that it can only be separated out by such means as would gradually dissolve the iodoform. It is a light-yellowish powder, soluble in water, and capable of sterilisation at 100°. The powder is very fine and dry. It does not cake together, and is in this respect preferable to iodoform. It is also three times less in weight than iodoform, and on this account is economical. Its chief advantage consists, however, in the almost entire absence of smell, so that, in the case of large wound surfaces dressed with this preparation, the odour of iodoform is scarcely noticeable. It is therefore not disagreeable. It is prepared by Messrs. Knoll & Co., and Mr. B. Kuhn, of 36, St. Mary-at-Hill, is the British agent.

Izal.—A vaporising dish used with an ordinary night-light has been brought out by Messrs. Newton, Chambers & Co., Ltd., with a view to the use of izal, in the form of vapour for the cure of pulmonary

tuberculosis. They propose that the following mixture should be used :—

℞	Izal	℥x	Water to	℥xl
	Terebene Pur.	℥x		

This should be well shaken and placed in the vaporising dish, the evaporation being continued night and day. The rate of evaporation is controlled by the height of the dish from the night-light. The special point claimed is that izal oil has a boiling point above 200° C., and therefore does not volatilise at the temperature of boiling water. It becomes mechanically suspended by means of the water vapour, and is thus drawn into the lungs, and not being volatile it has no tendency to be expelled from the lungs, as is the case with volatile substances. We hope that this theory is not quite correct, or it would be rather inconvenient for the patient. The application seems to have done good in some cases of croup and whooping cough, and deserves a trial.

Kresamin.—This is an antiseptic produced by the action of trikresol and ethylenediamine. It has been used by Prof. H. Eckstein, of Breslau, in many cases of wet and irritating eczema. He used it in the form of compress, ointment, and in baths, and found it less irritating and more penetrating than other cresols, and superior to carbolic acid. These properties render it likely to be a very serviceable preparation in the treatment of all catarrhal and ulcerated conditions of the skin, and it well deserves a trial at the hands of the medical profession. Messrs. Zimmermann, 9 and 10, St. Mary-at-Hill, E.C., are the British agents.

Kronthal Waters.—Messrs. Schweppes, Ltd., have undertaken the importation of the well-known Kronthal Waters. The waters of the various springs are distinguished by the colour of the labels. Thus the blue label represents an excellent table-water of exceptional purity, which blends well with spirits or wines. The red label is intended for use in cases of gout on account of its solvent power of uric acid, which in laboratory experiments is shown to be six times that of distilled water. The green label represents an excellent chalybeate water. Messrs. Schweppes' name is a sufficient guarantee that every care will be exercised in the supply of these waters in their pure and natural form.

Lenirobin and Eurobin.—These are preparations of chrysarobin prepared by Messrs. Knoll. Lenirobin is a mild preparation, and eurobin a stronger form. They are being used in the treatment of chronic eczema and psoriasis in the German hospitals. Mr. B. Kuhn, 36, St. Mary-at-Hill, is the British agent.

Levico Water.—The value of this natural mineral water in all cases where arsenic is indicated is well known to the profession. There are two distinct springs ; from the one is bottled the Levico Mild, and from the other, which is much richer, both in arsenious acid and in iron, is obtained the Levico Strong. Both these waters are

bottled without dilution as they issue from the two springs, and do not undergo any process whatever. They can be therefore used in this country quite as well as in Austria. The water is imported by Messrs. A. & M. Zimmermann, 9 and 10, St. Mary-at-Hill, E.C.

Liquors (Concentrated).—Messrs. Batley & Watts send us samples of their well-known liquors, which may be considered as standard preparations. They are so well known and appreciated that comment is unnecessary.

Mineral Water Salts.—Dr. E. Sandow, of Hamburg, has undertaken the manufacture of mineral salts in such proportions and combinations as to resemble the natural waters of most of the European spas. These salts are put up in an extremely handy and convenient form, viz., in bottles, the hollow glass-stoppers of which are adjusted for each kind so as to form an accurate measure of the quantity of salt required for preparing a tumblerful of mineral water. As the salts will keep in good condition for a long time, and, with ordinary care in storing, are not affected by climatic changes, they are invaluable for hot climates, especially since many of the natural mineral waters will not stand the transport. Last, but not least, the prices of Sandow's salts, as compared with the prices of natural mineral waters in this country, are so extremely low that they are brought within the reach of everybody. Messrs. Buchner, Schacht & Co., of 149, Houndsditch, London, E.C., are the British agents.

The "Tabloid" Artificial Mineral Water Salts of Messrs. Burroughs, Wellcome & Co. form pleasant effervescent draughts, one in a stated quantity of water being equal in strength to the same volume of Carlsbad, Vichy, Kissingen, etc., as the case may be. The "Tabloid" mineral water salts are accurate in dosage, and far more compact than the ordinary salts or bottled waters. The list includes "Tabloid," Carlsbad, Vichy, Kissingen, and Seltzer mineral water salts, supplemented by "Tabloid," effervescent Vichy and lithium caffeine citrate (gr. 60 B.P.), lithium bitartrate, lithium citrate (B.P.), magnesium citrate (true), magnesium sulphate (B.P.), potassium citrate, sodium phosphate (B.P.), and sodium. So far as portability and accuracy of dosage are concerned, nothing could be better than these tabloids, but if the directions were carried out it would be found that the effervescent tabloids would have ceased to effervesce before the tabloid was all dissolved. They should be crushed into powder before use, and such directions should be on the bottle.

Mist. Bromid. Co. (Concentrated).—This is a combination of chloral hydrate, potassium bromide, extract of cann. ind., and extract of hyoscyamus, each fluid drachm representing 15 grains of chloral. Given in doses of 30 to 60 minims it is an excellent sedative. It is prepared by Messrs. C. J. Hewlett & Son, 40 to 42, Charlotte Street, London, E.C.

Mist. Senecio. Co.—This is a combination of fluid extract of senecio jacobœa, anemonin and hydrastis. It is useful as a uterine

tonic, and has proved serviceable in both amenorrhœa and dysmenorrhœa. It is made by Messrs. C. J. Hewlett & Son, 40 to 42, Charlotte Street, London, E.C.

Naftalan.—This ointment is procured from a peculiar crude naphtha, differing considerably from any other raw naphtha in its physical and chemical properties. In spite of a high specific gravity of 0·960, it does not contain any resinous products, dissolves completely in ether, and burns with an agreeable aromatic smell, without leaving any residue. This peculiar naphtha is found in the Caucasus, at the foot of the Armenian highlands, and bears the name of "Naftalan." The place is frequently called the "Holy Bath," because during the three hot months, from time immemorial, five to six hundred invalids come yearly to bathe in naphtha, seeking cure for diseases of the skin, wounds, rheumatism, gout, etc. The street hawkers of Persia and Asia Minor have always sold the naphtha as a remedy for men and animals. Naftalan is an extract of this crude naphtha, and contains the healing properties of the same, in concentration. Its high melting point prevents it from spreading, and it would form an excellent basis for ointments in skin disease if sold at a reasonable price. Messrs. Zimmermann are the British agents.

Orexin Tannate.—This is prepared from the coal tar derivatives, and has, in common with other preparations of orexin, the power to stimulate the secretion of hydrochloric acid in the stomach. It has been used with success in anorexia, and is well borne by children as well as adults. It is said to be especially valuable for increasing the appetite and shortening the period of digestion. Messrs. A. & M. Zimmerman, of 9 and 10, St. Mary-at-Hill, London, E.C., are the British Agents.

Orthoform (New).—This substance fills a distinct want in medicine. It is a local anæsthetic which acts only on the broken skin or mucous membrane, and then acts so slowly that its action can be maintained for an indefinite time. In painful ulcers, burns of the third degree, ulcerated throat, and in numerous other affections, we have a drug which will give the same relief over a prolonged period which we can obtain by cocaine only temporarily. It is decidedly a drug which every practitioner should bear in mind in dealing with all painful affections where there is breach of continuity. Orthoform (*New*) is a cheaper and better preparation than that originally produced. It is sold by Messrs. Lucius & Brünig, St. Mary Axe, London, E.C.

Paraffin Preparations.—We have received from Messrs. Stern, Bros., of 57, Gracechurch Street, E.C., samples of the paraffin preparations, of which they are one of the largest makers in the country. The Paraffinum Liquidum (B.P. 98) is quite water white, and entirely free from odour. It is quite free from sulphur contamination. The paraffinum "Molle" and "Album" are perfect jellies, and form perfect bases for ointments.

Petrosulfol.—This closely resembles ichthyol in appearance and consistency, the odour being less disagreeable. It is said to be

identical in its properties, and as it is lower in price it is likely to be largely used as a substitute. Those who have made comparative trials speak very highly of petrosulfol. Messrs. Zimmermann are the British agents.

Pil. Sumbul Co.—This is a very useful pill in certain nervous disorders, and has done good work in many cases of hysteria :—

Ext. Sumbul	gr. j	Ferri Sulp. Ext.	gr. j
Asafœt.	gr. ij	Ac. Arsenios.	gr. $\frac{1}{60}$

Fiat Pil.

These are made up by Messrs. Warner & Co., of Philadelphia, and can be obtained of Messrs. F. Newbery & Sons, 1-3 King Edward St., London, E.C.

Protargol Bougies.—Protargol is a new silver preparation, highly efficacious in the treatment of gonorrhœa, and also recommended as an aseptic wound healer. It contains 8 per cent. of silver, which is not precipitated by albumin, chloride of ammonium, or dilute hydrochloric acid. The usual strength of the solution for injections and lotions is $\frac{1}{4}$ to 2 per cent. Messrs. R. Sumner & Co. have introduced some bougies which are particularly useful for the use of this remedy in cases of gonorrhœa, and are much to be preferred to injections. They can be had of all strengths from $\frac{1}{4}$ to 2 per cent.

Saline Solutions for Intravenous Injection.—The intravenous injection, at blood heat, of sterilised water containing salts of sodium or potassium to prevent coagulation is, to a large extent, taking the place of the transfusion treatment for collapse from hæmorrhage, cholera, etc. By means of a simple transfusion apparatus, one pint of water, previously boiled and containing one drachm of the salts of sodium or potassium, is injected at 100° F. The three "soloid" preparations recently introduced afford a convenient means of making these saline solutions quickly and of the right strength. The preparations are: "Soloid" sodium chloride, gr. 30; "Soloid" sodium chloride, gr. 15, and sodium sulphate, gr. 15; "Soloid" sodium chloride compound :—

℞	Sodii Chloridi	gr. 25	Sodii Phosphatis	gr. 1
	Sodii Sulphatis	gr. 1¾	Potassii Chloratis	gr. 1½
	Sodii Carbonatis	gr. 1¼		

Solutions of correct strength are prepared by dissolving two in one pint of water. Messrs. Burroughs, Wellcome & Co. are the manufacturers.

Sandow's Carbonated Baths.—This preparation affords a ready means for producing a brisk and *lasting* effervescence in ordinary as well as in medicated baths. Carbonated brine baths are now used most extensively in the Schott treatment of heart disease, and the best proof of the value of Sandow's baths is, that these latter have been adopted by all the leading spas, *e.g.*, the Corporation baths at Bath, Harrogate, Leamington, etc., and by a great many private institutions

and hydros. Messrs. Buchner, Schacht & Co., of 149 Houndsditch, London, E.C., are the British agents.

Stains for Microscopy.—Amongst the most generally employed aniline stains for microscopical work are Bismarck brown, eosin, fuchsine, gentian violet and methylene. A happy thought has inspired Burroughs, Wellcome & Co., to compress 1-grain quantities of these as "Soloid" preparations, so that the microscopist can instantly make small quantities of any stain he may require. The difficulty of keeping solutions of these aniline colours is thus obviated, and the whole set of stains occupy no appreciable space and can always be kept at hand, in the microscope case itself, if desired.

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The same firm also sell smaller powders for making lotions and sulphur washes, and we believe that these will have a large sale when the profession know of them.

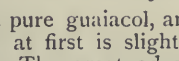
Tabloids.—An interesting series of "Tabloid" preparations, representing the pills of the 1898 B.P., in so far as active ingredients and strength are concerned, has recently been introduced by Burroughs, Wellcome & Co.

In respect to the tabloids for *ophthalmic* use, the already small size of these products has been still further reduced, and by a new method of manufacture the solubility has been so increased that their solution in the lachrimal secretion is almost instantaneous. The list includes all the commonly employed mydriatics, myotics and ocular anæsthetics. Recent additions are: "Tabloid" mydrine, gr. $\frac{1}{50}$—a combination of the alkaloids ephedrine and homatropine, which acts as a rapid mydriatic of short duration; "Tabloid" fluorescein, gr. $\frac{1}{2000}$—used to diagnose corneal lesions. The normal cornea is not stained, but ulcers and parts denuded of epithelium become green and remain so for some hours.

Tannalbin (Knoll).—This is made from albuminate of tannin, and contains about 50 per cent. of tannin. It is recommended as a non-toxic intestinal astringent, and has been used with considerable success in the treatment of both acute and chronic diarrhœa, the diarrhœa of phthisis, and in chronic dysentery. It is put up in tablets

with a little chocolate, each containing 5 grains. The taste is agreeable. Mr. B. Kuhn, of 36, St. Mary-at-Hill, E.C., is the British agent.

Thiocol.—Thiocol is the potassium salt of guaiacol-sulphonic acid.



It contains 60 per cent. pure guaiacol, and consists of a fine white odourless powder, which at first is slightly bitter to the palate, but afterwards tastes sweet. The great advantages of thiocol over all other guaiacol preparations are the following: (1,) Absolute freedom from odour; (2,) Extremely ready solubility in water; (3,) Non-irritation of the stomach; (4,) Easy of assimilation. The absence of odour and irritant effects enable thiocol to be administered in all cases where patients have hitherto exhibited an antipathy to the creasote treatment. Its solubility in water admits of administration of thiocol in this medium, together with suitable correctives. An aqueous solution of thiocol flavoured with syr. aurant. cort. is especially favoured. Mr. Hugo Lorenz, 7 and 8, Idol Lane, E.C., is the British agent.

Urotropin.—This drug has been used by Prof. A. Nicolaier as a remedy for cystitis with urinary fermentation, and he claims to have cured cases when salicylate of soda proved quite useless. He uses a 7½ grain pastile in ½ pint of water three times a day. Messrs. A. & M. Zimmermann are the British agents.

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Cocoa.—Messrs. Taylor Bros. are chiefly noted as the manufacturers of cocoa to the Royal Navy, and the cakes of cocoa combined with sugar, which the sailors use, make an excellent and nourishing beverage. But this firm also supplies all the other forms of cocoa known to commerce, and amongst them we can speak with high approval of their Cocoa Essence, which having all the fatty matter removed is rendered very soluble, and suited to those of delicate digestion. It is decidedly a cocoa of the highest class which every physician can recommend with the fullest confidence.

Another cocoa essence has been introduced by the Bovril Co. It is very soluble and has a delicate aroma, and we have no doubt will be appreciated by invalids. The same firm issue a chocolate combined with Bovril, which is very nourishing and sustaining. It has our fullest approval, and we recommend it.

Messrs. Lyle & Co., 21, Mincing Lane, E.C., also send us a sample of their soluble cocoa, which appears excellently adapted for the purpose of a nourishing beverage.

Hubbard's Rusks.—Mr. Walter Hubbard, of Partick, Glasgow, has for many years made a speciality of the manufacture of rusks for infants and invalids, with and without sugar. By careful attention to the details of manufacture he has produced a rusk which may be almost said to melt in the mouth. They are a different thing altogether from the rusks ordinarily sold, and are far more easy of digestion. They are sent to all parts of the world in tins, and retain their crispness perfectly.

Meat Juices.—*Vimbos.*—We have received samples of Vimbos, which is one of the best fluid meat extracts. It has an agreeable and refreshing taste, and is highly stimulating. It will also make a very desirable addition to the soups used for invalids and convalescents.

Bovril.—We have previously noticed this well-known preparation; but we wish to call particular attention to the Bovril Lozenges issued by the Company. We have tried them personally for some time, and we find that they are a very useful restorative when meals cannot be obtained or when exhaustion comes on before them. Unlike most meat lozenges, they dissolve readily in the mouth. There is no question of their direct nutritive value.

Biwin is another claimant to favour, and our examination of it shows it to be an excellently prepared and thoroughly reliable article, as we should expect it to be bearing, as it does, the name of Messrs. F. L. Borthwick & Co., whose Bouillon has so long been favourably known to the public.

Milk (Condensed).—We have received samples of the unsweetened condensed milk of the "First Swiss Alpine Milk Exporting Co." It is a pure milk condensed to a quarter of its bulk, and without the addition of sugar or preservative agents. It is a very reliable preparation, and can be recommended.

Sanose is a distinct addition to our methods of rapidly increasing the nourishment of patients. It consists of 80 per cent. casein, and 20 per cent. albumose, and appears as a fine, white, tasteless powder. It can be mixed therefore with milk, soup, cocoa, barley-water, or given in a way most desired by the patient, and taken by him almost without a knowledge of its presence. The casein is extracted by rational methods from milk, and is used for the purposes of sanose in the purest form of a fine powder, while the albumose is produced by improved methods from the white of egg, and is free from pepton and absolutely pure. The body therefore does not receive products produced by chemical methods, but the natural constitutents of food eliminated by natural processes. Sanose is introduced into the country by Messrs. A. & M. Zimmermann, 9 & 10 St. Mary-at-Hill, E.C.

Sugar.—The Glebe Sugar Refining Co., Eastcheap, London, send us some samples of pure sugar. It is of some importance for medicinal purposes to be able to obtain a perfectly pure sugar, and we are glad to know where it can be obtained.

Turtle Soup.—We all know the value of turtle soup for invalids, but even those who can afford it cannot always obtain it. Mr. T. K. Bellis, 6, Jeffrey's Square, E.C., who is the largest importer of turtles, has endeavoured to remove this difficulty, and at the same time overcome some of the uncertainties in the demand for turtle by putting up the genuine article into glass jars and tins. No evidence of any preservative being employed can be found, and the flavour is delicious. Two pints of Bellis' Turtle Soup added to an equal quantity of clear stock will produce sufficient soup for twelve persons, the cost of the turtle being 10s. It will be seen, therefore, that the expense is very much less than the usual cost. Turtle jelly is also issued in 2s. bottles which can be given to invalids by the spoonful. It is of the highest importance in ordering such a comparatively costly form of nourishment which is open to adulteration, that there should be some kind of guarantee of the genuineness of the article. Mr. T. K. Bellis' name provides this, and we are very glad that he has determined to supply it in a form which does not admit of any sophistication.

Books of the Year.

A List of the Principal Medical Works and New Editions Published during 1898.

AMBULANCE AND NURSING.

Ambulance Work: Questions and Answers upon "First Aid to the Injured.' By J. W. Martin, M.D., & John Martin, M.D. *Bailliére. Net* 1/-

Asepsis and Antisepsis in Abdominal Surgery and Gynæcology. For Guidance in Medical Homes and Private Practice. By H. Macnaughton-Jones, M.D. 8vo, pp. 72. *Baillière* - - - *Net* 3/-

District Nursing on a Provident Basis. By Jamieson B. Hurry. Cr. 8vo, pp. 116. *Scientific Press* - - - - - - - - 2/-

Drowning: Illustrated Handbook for the Rescue, Release from, and the Resuscitation of the, etc., etc., etc. Diamond Jubilee Edition. 16mo, pp. 104. *Life Saving Society* - - - - - - - - - 1/-

First Aid: Manual of. Being a Text-Book for Ambulance Classes and a work of Reference for Domestic and General Use. By J. A. Austin. Illust. Cr. 8vo, pp. 216. *Low* - - - - - - - - - 3/6

First Aid to the Injured. Six Ambulance Lectures. By Dr. Friedrich Esmarch. Translated from the German by H.R.H. Princess Christian. 6th ed. Illust. Cr. 8vo, pp. xii—117. *Smith, Elder* - - 2/-

First Aid to the Injured, and Management of the Sick. An Ambulance Handbook and Elementary Manual of Nursing for Volunteer Bearers and others. By E. J. Lawless. 49 Engravings. Cr. 8vo, pp. 278. *Scientific Press* - - - - - - - - - 3/6

First Aid Work and Home Nursing: Text-Book of. For the Use of Ambulance Classes. Edited by William R. Smith. Cr. 8vo, pp. 160. *Allman* - - - - - - - - - - - - *Net* 2/-

Handbook for Nurses. By J. K. Watson, M.D. Cr. 8vo. 60 Illusts. *Scientific Press* - - - - - - - - - - - - *Net* 7/6

Lectures on Medicine to Nurses: Course of. By Herbert E. Cuff, M.D. 2nd ed. Cr. 8vo, pp. 286. *Churchill* - - - - - - 3/6

Nursing: Complete System of. Written by Medical Men and Nurses. Edit. by Honnor Morten. Cr. 8vo, pp. 412. *Low* - - - *Net* 7/6

Nursing Directory, 1899: Burdett's Official. Compiled and Edit. by Sir Henry Burdett, K.C.B. 2nd Year. Cr. 8vo, pp. 600. *Scientific Press* 5/-

Nursing: Manual of. Medical and Surgical. By L. Humphry, M.D. 18th ed., revised and enlarged. 8vo. *Griffin* - - - - 3/6

Nursing Profession: How and Where to Train. By Sir Henry Burdett, K.C.B. 1st Year. To be published annually. Cr. 8vo, pp. 300. *Scientific Press* - - - - - - - - - - *Net* 2/-

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Wound Dresser, The. A Series of Letters written from the Hospitals in Washington, during the War of the Rebellion. By Walt Whitman. Edit. by Richard Maurice Bucke, M.D. Cr. 8vo, pp. 212. *Putnam* 6/-

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See also p. 803.

House of St. John of God, Stillorgan. Resid. Phys., Dr. P. O'Connell. Access — Stillorgan station, ½ mile. Dublin, 5 miles.

Richmond District Asylum. Res. Med. Supt., Dr. C. Norman.

St. Patrick's Hospital. Med. Supt., Dr. J. Moloney.

Verville, Clontarf, near Dublin. Med. Prop., Dr. Lynch.

Woodbine Lodge, Rathfarnham, 6 miles (ladies). Prop., Mrs. Bishop. Med. Supt., Dr. A. Croly. Access — Rathfarnham tram, 2 miles.

Dudley (Stafford). — *Ashwood House*, Kingswinford. Props., Drs. Peacock and Pietersen. Res. Med. Supt., Dr. Pietersen. Access—Stourbridge Junct. 3½ miles, Dudley sta., 4 miles; Wolverhampton, 7 miles.

Dumfries.—*Crichton Royal Institution.* Med. Supt., J. Rutherford, M.D. Access—Dumfries, 1 mile.

Dundee. — *Royal Asylum*, Westgreen. Res. Med. Supt., James Rorie, M.D., Access—Dundee, 3 miles; Liff, 1½ miles.

Durham.—*County Asylum*, Winterton. Res. Med. Supt., R. Smith, M.D. Access—Sedgefield station, 3 miles, by 'bus.

Earlswood. — *Asylum for Idiots.* Res. Med. Supt., Dr. Chas. Caldecott. Males 400, females 200. Admission by election or payment from 65 guineas upwards. Apply to Sec., 36, King William st, E.C. Access—Earlswood sta; Red Hill Junct., 1½ miles. Open for inspection Tuesdays between 11 & 5 o'clock.

Edinburgh. — *Mavisbank House*, Polton, Midlothian. Res. Med. Supt., G. R. Wilson, M.D. Access -- Polton sta., N.B.R., 5 minutes' walk.

Midlothian and Peebles District Asylum. Patients 240. Res. Med. Supt., R. B. Mitchell, M.D. Access--Rosslynlee sta., 1 mile.

Mollendo House, Musselburgh. Prop. and Res. Med. Supt., A. W. Mackenzie, L.R.C.P., Ed. Cons. Phys., J. H. Horsburgh, M.B. Access—Musselburgh station, 10 minutes' walk.

Royal Edinburgh Asylum, Morningside. Res. Phys. Supt., T. S. Clouston, M.D. Access—Edinburgh, 1½ miles.

Saughton Hall. Res. Med. Supt. & Prop., Dr. J. Batty Tuke, M.D. Access—Gorgie stat. 15 min.

Elgin.—*District Asylum.* Med. Supt., J. W. N. Mackay, M.D., Access—Elgin, ¼ mile.

Ennis. — *District Asylum.* Res. Med. Supt., Dr. R. P. Gelston. Access—Ennis station, 1¼ miles.

Enniscorthy (Co. Wexford).—*District Lunatic Asylum.* Res. Med. Supt., Thos. Drapes, M.B. Access—Enniscorthy, 1 mile.

Epsom (Surrey).—*Church st.* (for 14 ladies). Res. Med. Supt., Dr. W. Clement Daniel. Access—L. & S.W.R. and L.B.S.C.R., 5 minutes. *See also p.* 811.

Exeter.—*City Asylum*, Heavitree, Res. Med. Supt., R. L. Rutherford, M.D. Access—Exeter, L. and S.W.R., 3 miles; G.W.R., 4 miles.

Court Hall, Kenton. Prop., Mrs. Mules. Access—Starcross, 1 mile. *See also p.* 811.

Devon County Asylum, Exminster. Med. Supt., Dr. Arthur N. Davis. Access—Exminster, 1 mile; Exeter, 4 miles.

Wonford House (Hospital for the Insane). Res. Med. Supt., P. Maury Deas, M.B., M.S. Lond. Access—Exeter station (Queen st.) 1½ miles; (St. David's), 2 miles. *See also p.* 808.

Fairford (Gloucestershire).—*Retreat.* Res. Med. Prop., Daniel Iles, M.R.C.S. Access—Fairford station.

Gateshead.—*Dunston Lodge Asylum*, Newcastle & Gateshead. Props., Messrs. Garbutt & Smith. Res. Licensee, Mr. R. H. O. Garbutt. Access—Newcastle-on-Tyne stat., 3 miles.

Glasgow.—*Baronry Parochial Asylum*, Lenzie. Med. Supt., Robt. Blair, M.D. Access — Lenzie station, 1 mile; Glasgow, 8 miles.

District Asylum. Res. Med. Supt., James H. Skeen, M.B. Access—Bothwell and Fallside stations, ½ mile; Glasgow, 9 miles.

District Asylum, Gartloch. Med. Supt., L. R. Oswald, M.B.

Govan Parochial Asylum, Merryflatts. Med. Supt., W. J. Richard, M.B.

Lanark County Asylum. Med. Off., Dr. A. C. Clark. Access—Hartwood, 5 minutes.

Royal Asylum, Gartnavel. Res. Phys. Supt., D. Yellowlees, M.D., LL.D.

Smithson Asylum, Greenock. Med. Off., J. Wallace, M.D. Access—Greenock, about 1½ miles.

Gloucester. — *Barnwood House.* Res. Med. Supt., J. G. Soutar, M.B., C.M. Access—Gloucester, 2 miles. *See also p.* 809.

Gloucester County Asylums, Wotton & Barnwood, Gloucester. Res. Med. Supt., F. Hurst Craddock, M.A. Oxon., M.R.C.S. Access—Gloucester station, 1 mile.

Goudhurst (Kent). — *Tattlebury House* (for 6 males and 2 females). Props., Ernest & Miss Newington. Access—Goudhurst, 1 mile.

Great Yarmouth. — *Royal Naval Hospital.* Dr. J. Dudley, Fleet Surgeon in charge. Access—Great Yarmouth station, ½ mile. For Naval patients only, admitted by Admiralty order.

Guernsey.—*St. Peter Port Asylum.* Med. Supt., Dr. C. Crewe.

Haddington.—*District Asylum*, 17 miles from Edinburgh. Med. Supt., J. Bruce-Ronaldson, M.D. Access — Haddington station, 10 minutes.

Harpenden (Herts). — *Harpenden Hall*, 4 miles from St. Alban's (for 13 ladies). Prop., A. H. Boys, M.R.C.S. Res. Med. Supt., Dr. H. Fraser. Access—Harpenden station.

Hatton (near Warwick).—*County Asylum.* Res. Med. Supt., A. Miller, M.B. Access — Hatton sta., 2 miles; Warwick sta., 3 mls.

Hayward's Heath.—*East Sussex County Asylum.* Res. Med. Supt., C. E. Saunders, M.D. Access—Hayward's Heath sta., 1½ miles.

Henley-in-Arden (Warwickshire).—*Glendossil* (for both sexes). Res. Prop., Dr. S. H. Agar. Access—Henley-in-Arden, G.W.R., ½ mile.

Hereford.—*County and City Asylum.* Res. Med. Supt., C. S. Morrison, L.R.C.P., Ed. Access—Hereford, 3 miles.

Hitchin (Herts), near. — *Three Counties Asylum.* Res. Med. Supt. E. Swain, L.R.C.P. Access—Three Counties station, 1 mile.

Hull.—*City Asylum.* Res. Med. Supt., J. Merson, M.D. Access—Willerby station, 1 mile.

Craven Street Retreat, Sculcoates. Prop., J. Brown. Access—Hull, 1 mile.

Inverness. — *District Asylum.* Med. Sup., John Keay, M.D. Asst. Med. Off., Dr. Chas. D. Law. Access—Inverness, 2½ miles.

Ipswich.—*Borough Asylum.* Med. Supt., Dr. E. L. Rowe. Access—Ipswich, 2 miles.

Isle of Man. — *Lunatic Asylum*, Union Mills. Med. Supt., W. Richardson, M.D. Access—Douglas, 3 miles.

Isleworth (Middlesex). — *Wyke House.* Res. Prop., Dr. F. Murchison. Access — Isleworth, Brentford, Osterley station, 1 mile.

Ivybridge (Blackadon). — *Plymouth Borough Asylum.* Res. Med. Supt., Dr. A. N. Davis. Access—Wrangaton, G.W.R., 1½ miles; Ivybridge, 3 miles.

Jersey. — *The Grove.* Res. Med. Prop., F. N. Gaudin, M.R.C.S. 2½ miles from St. Heliers, 2 from St. Aubin's. Access—G. W. R. *viâ.* Weymouth

Jersey Asylum. Med. Supt., Julius Labey, M.R.C.S., &c.

Kilkenny.—*District Asylum.* Res. Med. Sup., G. F. West, L.R.C.P. Access—Kilkenny, ½ mile.

Killarney.—*District Asylum.* Res. Med. Supt., Dr. L. T. Griffin. Asst. Med. Off.., E. W. Griffin, M.D. Access—Killarney, ½ mile.

Kirkby Lonsdale. — *Greta Bank.* Res. Licensee, Miss Williams. Access—Bentham (M.R.) 2 miles.

Knowle (near Fareham).—*County Asylum.* Med. Supt., T. B. Worthington, M.D.

Lancaster.—*County Asylum.* Res. Med. Supt., David M. Cassidy, M.D., D.Sc. Access—Lancaster station (Mid. and L. & N.W. Rly.)

Leeds (near Menston). — *West Riding Asylum.* Res. Med. Supt., Dr. McDowall. Access—Menston, 1 mile.

Leicester.—*Borough Asylum.* Res. Med. Supt., J. E. M. Finch, M.D. Access—Humberstone G.N.R. ½ mile.

Leicestershire and Rutland Asylum. Res. Med. Supt., R. C. Stewart, M.R.C.S. Access—Leicester Town, 1 mile.

Letterkenny and Londonderry.—*Donegal District Asylum.* Res. Med. Supt., E E. Moore, M.D. Asst. Med. Off., J. C. Martin, L.R.C.S.I. Access—Letterkenny and Lough Swilley Rly. ½ mile.

Lichfield.—*County Lunatic Asylum*, Burntwood, near Lichfield. Res. Med. Supt., J. B. Spence, M.D. Access—Lichfield City, 3½ miles; Trent Valley, 4½ miles; Hammerwich, 1½ mile.

Limerick.—*District Asylum.* Res. Med. Supt., Dr. E. D. O'Neill. Access—Limerick station, ½ mile.

Lincoln.—*County Asylum*, Bracebridge. Med. Supt., Dr. G. Parsons Torney. Access—2½ miles from station.

The Lawn. Res. Med. Supt., Arthur P. Russell, M.B. Access—Lincoln, 1 mile. *See also p.* 811.

Liverpool. — *Shaftesbury House.* Near Liverpool and Southport. Res. Med. Supt., Stanley A. Gill, B.A., M.D., M.R.C.P., Lond. Access—Formby station, ¼ mile distant. *See also p.* 801.

Tue Brook Villa, 3 miles from Liverpool. Res. Med. Supt., Geo. Duffus, M.B. (For 52 males and females). Access — Tue Brook station.

London.—*Bethlem Royal Hospital*, St. George's Road, London, S.E Res. Med. Supt., Theo. B. Hyslop, M.D., M.R.C.P.E.

See also p. 805.

Bethnall House, Cambridge Rd., N.E. Res. Med. Supt., J. K. Will, M.D. Lieut. Philip Vyner, Secretary. Access—Station near East London Museum.

Brooke House, Upper Clapton. Props., Mr. H. T. Monro and Dr. J. O. Adams. Res. Med. Supt., Dr. J. O. Adams. Access — Clapton.

Camberwell House, S.E. Prop., J. H. Paul, M.D. Res. Med. Sup., F. Schofield, M.D. Asst. Med. Offs., F. H. Edwards, M.D. and Norman Lavars, M.R.C.S.

Chiswick House, Chiswick, and 30, Queen Anne St., W. Res Lics., T. S. Tuke, M.A., M.B., M.R.C.S., and C. M. Tuke, M.R.C.S. Access—Chiswick sta., ¾ mile; Turnham Green station, ⅛ mile.

County Asylum, Colney Hatch, N. Res. Med. Supt. W. J. Seward, M.B. Acccss — New Southgate, G.N.R.

Featherstone Hall, Southall. Med. Lic., Miss H. E. Dixon. Res. Med. Supts., Drs. G. F. Blandford and G. B. McDonald. Access—Southall sta., 5 minutes.

Flower House, Catford, S.E. Res. Med. Supt., C. A. Mercier, M.B. Access — C. and D. R. Beckenham Hill, 5 minutes.

Grove Hall, Bow (both sexes), Med. Lics., Mr. Byas and Dr. Mickle. Access—Bow Road and Bow stations, ⅛ mile.

Halliford House, Sunbury-on-Thames, S.W. Res. Med. Supt., W. J. H. Haslett, M.R.C.S., Access—Sunbury station, 1¼ mile.

See also p. 807.

Hayes. Wood End House (ladies). Uxbridge, 3 miles, London 12 miles. Med. Lic., Dr. H. Stilwell. Access—Hayes station, 1 mile.

Hayes Park, Hayes, Middlesex, near Uxbridge. Prop., Mrs. B. Kelday. Access—Hayes station, 2 miles.

Hendon Grove Asylum (for ladies), Hendon. Res. Med. Lic., H. Hicks, M.D. Access—By M.R., Hendon sta., ½ mile, or 'Bus from Swiss cottage, St. John's Wood, N.W.

Hoxton House, London, N. Res. Med. Supt., J. F. Woods. Access — Shoreditch station, 2 minutes; Liverpool Street station, 10 minutes.

London County Asylum, Banstead, S.E., near Sutton. Res. Med. Supt., T. C. Shaw, M.D. Access — Belmont sta., ½ mile; Sutton station, 1½ mile.

London County Asylum, Cane Hill, Purley, Surrey. Med. Supt., Dr. J. M. Moody.

London County Asylum, Claybury, Woodford, Essex. Res. Med. Supt., Robt. Jones. M.D. Access—Woodford, 1½ miles.

London County Asylum, Hanwell, W. Res. Med. Supt., R. R. Alexander, M.D.

Middlesex County Asylum, Tooting, S. W. Med. Supt., H. G. Hill, M.R.C.S. Access—Wandsworth Common station, 1 mile.

Moorcroft House, Hillingdon (males). Uxbridge, 2 miles, London, 13 miles. Med. Licensees, Dr. Stilwell, and Dr. R. H. Cole. Access—West Drayton Station, 2 miles.

Newlands House, Tooting, Bec Road, S.W. Med. Prop., Dr. H. Sutherland. Access — Balham station, 1½ miles, and tram.

Northumberland House, Green Lanes, N. Prop., A. H. Stocker, M.D. Res. Med. Supt., G. E. Mould, M.R.C.S. Access—Finsbury Park station, 1 mile.

Otto House, 47, North End Rd., Hammersmith, W. Med. Prop., Dr. H. Sutherland. Access—West Kensington station, 1 mile.

Peckham House, Peckham, S.E. Prop., Alonzo H. Stocker, M.D. Res. Med. Supt., Harold C. Halsted, M.D. Access—Peckham Rye station, 10 minutes' walk. *See also p.* 811.

Peterborough House, Fulham. Res. Med. Supt., Dr. James Robt. Hill. Access—Parsons' Green or Chelsea station, 5 minutes' walk. *See also p.* 807.

St. Luke's Hospital, Old Street, E.C. Res. Med. Supt., G. Mickley, M.B. *See also p.* 805.

Sutherland House, Surbiton, near Kingston - on - Thames (ladies). Res. Med. Supt., Robt. Collum, M.D. Access—Surbiton station, ¼ mile.

The Huguenots, East Hill, Wandsworth, S.W. (ladies), Lic., Mrs. Leech. Med. Off., Dr. G. F. Blandford. Access — Clapham Junc, sta., 10 mins.; Wandsworth, 3 minutes.

The Priory, Roehampton, S.W., near Richmond. Res. Med. Supt., James Chambers, M.D. Access —Barnes station, 8 minutes.

Vine Cottage, Norwood Green, Southall. Prop., Mrs. Oliver. Med. Supt., Dr. H. J. Thornton. Access—Southall station, 1 mile.

Londonderry. — *District Asylum.* Res. Med. Supt., Dr. Hetherington. Access—Londonderry station, 1 mile.

Macclesfield. — *Parkside Asylum.* Res. Med. Supt., T. Steele Sheldon, M.B., Lond. Access — Macclesfield station, 1 mile.

Maidstone —*Kent County Asylum.* Res. Med. Supt., F. P. Davies, M.D. Access — Maidstone sta., 1½ miles.

West Malling Place (for ladies). Castle House and Winthies Cottage (for gentlemen). Res. Med. Supt., Dr. James Adam. Access—Malling station, 1 mile.

Market Lavington (Wilts). — *Fiddington House.* Prop., Major Reilly. Access—Devizes station, 6 miles.

Maryborough (Queen's County). — *District Asylum.* Res. Med. Supt., Dr. J. H. Hatchell. Access—Maryborough, ½ mile.

Melrose, N.B.—*Roxburgh District Asylum.* Res. Med. Supt., J. C. Johnstone, M.D. Access—Melrose, 1 mile,

Melton. — *Suffolk County Asylum*, near Woodbridge. Res. Med. Supt., J. R. Whitwell, M.B. Access—Melton station, 1¼ mile; Woodbridge station, 2¼ miles.

Monaghan (Ireland). — *District Asylum.* Res. Med. Supt., Dr. Edward Taylor. Access—Monaghan, ¼ mile.

Montrose, N.B.—*Montrose Royal Lunatic Asylum.* Phys. Supt., John G. Havelock, M.D. Access —Hillside station, ¼ mile; Dubton station, 1 mile.

Morpeth. — *Northumberland County Asylum.* Res. Med. Supt., Thos. W. McDowall, M.D. Access—Morpeth station, 1 mile, by 'Bus.

Mullingar.—*District Asylum.* Res. Med. Supt., Dr. A. D. Finegan. Access—Mullingar sta., 1 mile.

Nelson (Lanc.). — *Marsden Hall* (both sexes). Res. Prop., Mrs. Bennett. Med. Supt., Dr. A. P. Millar. Access—Nelson or Colne sta., 1½ miles. *See also p.* 807.

Newcastle-on-Tyne. — *City County Asylum*, Gosforth. Res. Med. Supt., Jas. T. Callcott, M.D. Access—Newcastle, 4 miles.

Newton-le-Willows (Lanc.) — *Haydock Lodge Asylum.* Med. Prop., E. H. Beaman, M.R.C.S., Edin. Res. Med. Supt., Dr. C. T. Street. Access—Newton-le-Willows station, 2 miles. *See also p.* 806.

Northampton.—*Berrywood Asylum.* Res. Med. Supt., W. Harding, M.D. Access — Castle station, 2 miles; Midland station, 2½ miles

St. Andrew's Hospital. Med. Sup., J. Bayley, M.R.C.S. Access—Northampton station, 1 ml.

Norwich.—*Heigham Hall.* Lics., Mrs. Watson and Mr. A. Mottram. Res. Med. Supt., Dr. A. McWilliam. Access—Victoria station, 1 mile; Thorpe sta., 1½ miles.

See also p. 809.

Norfolk County Asylum, Thorpe. 850 beds. Res. Med. Supt., D. G. Thomson, M.D. Access—Whitlingham station, 1 mile.

Norwich City Asylum, Hellesdon, near Norwich. Res. Phys and Supt., Wm. Harris, M.D. Hon. Con. Phys., Sir F. Bateman, M.D. Res. Asst. Med. Off., Dr. A. Sykes. Access—Thorpe, cab 4/-; Victoria station, cab, 3/6; City station, 3/-; Hellesdon sta., 1 mile.

The Bethel Hospital for the Insane. Res. Med. Supt., J. Fielding, M.D. Con. Phys., Sir F. Bateman, M.D. Access—Thorpe sta., 1 mile.

Nottingham.—*City Asylum*, Mapperley Hill. Med. Supt, E. Powell, M.R.C.S.

Notts County Asylum, Snenton. Res. Med. Supt., Dr. A. Aplin. Access—M. & G.N. station, 15 minutes.

The Coppice. Res. Med. Supt., W. B. Tate, M.D. Access—Mid. and Great Northern station, 2½ miles.

Omagh.—*District Asylum.* Res. Med. Supt., Geo., E. Carre, M.B. Access—Omagh station. 2 miles.

Oxford.—*Oxford County Asylum.* Res. Med. Supt., R. H. H. Sankey, M.R.C.S. Access—Littlemore station, G.W.R.

Warneford Asylum, Oxford, 1½ miles (for private patients only). Res. Med. Supt., James Neil, M.D. Access—Oxford station, 2¼ miles.

See also p. 808.

Paisley.—*Parochial East Asylum.* Med. Supt., T. Graham, M.D. Access—Paisley, 2 miles.

Parochial Asylum, Riccartsbar. Med. Off., D. Fraser, M.D.

Perth.—*District Asylum*, Murthly. Res. Med. Supt., Dr. G. M. Robertson, M.B. Access—Murthly.

James Murray's Royal Asylum (for private patients only), Perth. Access—Perth, under 2 miles.

See also p. 809.

Plymouth.—*Plympton House*, Plympton, South Devon. Drs. Aldridge and Turner. Access—Plympton, 1 mile; Mills, 2 miles.

See also p. 806.

Portsmouth.—*Borough Asylum.* Res. Med. Supt., B. H. Mumby, M.D., D.P.H. Access—Fratton station, 1½ miles.

Prestwich (near Manchester).—*County Asylum.* Res. Med. Supt., Henry Rooke Ley, M.R.C.S.

Rainhill (nr. Liverpool).—*County Asylum.* Res. Med. Supt., J. Wiglesworth, M.D. Access—St. Helen's. 2½ miles; Rainhill station, 1 mile.

Rotherham (Yorkshire). *The Grange*, near Rotherham, 5 miles from Sheffield (for ladies). Res. Med. Prop., W. C. Clapham, M.D. Access—Grange Lane station, ¼ mile.

Salisbury.—*Fisherton House Asylum.* Med. Supt., W. C. Finch, M.D. Acc.—Salisbury Stat., 5 minutes.

See also p. 802.

Laverstock House. Prop., J. Haynes; Med. Supt., Hy. J. Manning, M.R.C.S.

Shrewsbury.—*Salop & Montgomery Counties Asylum.* Res. Med. Supt., A. Strange, M.D. Access—Shrewsbury station, 2½ miles.

Sligo.—*District Asylum.* Res. Med. Supt., Dr. Joseph Petit. Access—M., G.W. and Sligo, Leitrim and N. Counties Rly,, Sligo sta., 1½ miles.

Stafford.—*County Asylum.* Res. Med. Supt., Dr. J. W. S. Christie. Access—Stafford, 1 mile.

Institution for the Insane, Coton Hill. Res. Med. Supt., Dr. R. W. Hewson. Acc.—Stafford, 1 mile.

Starcross (near Exeter).—*Western Counties Idiot Asylum.* Res. Supt., Wm. Locke. Access—Starcross station, 5 minutes.

Stirling.—*District Asylum.* Med. Supt., Dr. J. MacPherson.

St. Leonards-on-Sea. — *Ashbrook Hall,* Hollington (for ladies). Res. Props., Mrs. Hitch and Miss Adams. Access—Warrior Square Station, 2 miles.

Stone (near Aylesbury).—*Bucks County Asylum.* Res. Med. Supt., J. Humphry, M.R.C.S. Access—Aylesbury station, 3¼ miles.

Sutton (Surrey).—*Chalk Pit House* (for 3 lady patients). Prop., F. D. Atkins, M.R.C.S.

Tamworth (Staffs.). — *The Moat House* (for ladies). Res. Prop., E. Hollins, M.A. Med. Attnds. J. Holmes Joy, M.D., and H. H. Rubra, L.R.C.P. Access—Tamworth, ¾ mile. *See also p.* 811.

Taunton.—*Somerset & Bath Asylum,* Cotford, near Taunton. Res. Med. Supt., Dr. H. T. S. Aveline. Access—Norton Fitzwarren stat., 2 miles.

Ticehurst (Sussex). — *Asylum.* Props., H. F. H. Newington, M.R.C.P., and A. S. L. Newington, M.B.

Tonbridge.—*Redlands.* Res. Med. Supt., W. A. Harmer. Access—Tonbridge junction, S.E.R., 2½ miles.

Virginia Water.—*Holloway Sanatorium,* Hospital for the Insane. St. Ann's Heath. Res. Med. Supt., S. R. Philipps, M.D. Asst. Med. Offs., W. D. Moore, M.D., T. E. Harper, L.R.C.P., Rosina C. Despard, M.D., and N. E. Thomas, L.R.C.P. Access — Virginia Water sta., 5 minutes. Seaside Branch, Hove Villa, Dyke Rd., Brighton. Med. Officer, E. N. Edwards, M.R.C.S.
See also p. 809.

Wadsley (near Sheffield).—*South Yorkshire Asylum.* Res. Med. Supt., W. S. Kay, M.D. Access—Wadsley Bridge, 2 miles.

Wakefield.—*West Riding Asylum.* Res. Med. Supt. and Director, W. Bevan Lewis, L.R.C.P., Lon. Access—Kirkgate and Westgate station, 1 mile.

Wallingford (Berks). — *Berks County Asylum.*—Res. Med. Supt., J. W. A. Murdock, M.B. Access—Cholsey, 1 mile.

Warwick.—*Midland Counties Idiot Asylum,* Knowle, nr Birmingham. Res. Supt. & Sec., W. G. Blatch. Med. Off. R. H. Foster, M.R.C.S. Access—Knowle station, ½ mile.

Waterford. — *District Asylum.* Res. Med. Supt., J. A. Oakshott, M.D. Access—Waterford and Kilkenny sta., 2 miles.

St. Patrick's Inst., Belmont Pk. Conducted by the Brothers of Charity. Med. Supt., Dr. W R. Connolly. *See also p.* 810.

Wells.—*Somerset and Bath Asylum,* Wells, Som. Res. Med. Supt., A. Law Wade, M.D. Access—Wells, 2 miles; Masbury, 2½ miles.

Whitchurch (Salop).—*St. Mary's House* (ladies only). Res. Med. Supts., S. T. Gwynn, M.D., and C. H. Gwynn, M.D. Access—Whitchurch station, 1 mile.

Whitefield (near Manchester.)—*Overdale.* Res. Med. Supt., J. Holmes, M.D. Access—Prestwich and Whitefield sta., 1½ miles; Molyneux Brow, ¼ mile.

Whittingham (near Preston).—*County Asylum.* Res. Med. Supt., Dr. Frank Perceval. Access—Grimsargh station, 1¾ miles; Whittingham station, 3 minutes.

Winchelsea (Sussex). — *Periteau House,* near Hastings (5 ladies). Prop., Mrs. R. V. Skinner. Med. Supt., E. W. Skinner, M.D. Access—Winchelsea sta., 1 mile.

Woking.—*Surrey County Asylum,* Brookwood. Res. Med. Supt., Dr. J. E. Barton. Access—Brookwood station, 1¼ miles.

Worcester.—*County & City Lunatic Asylum,* Powick. Res. Med. Supt., Dr. G. M. P. Braine-Hartnell. Access—Worcester 4 miles.

York. — *The Pleasaunce*, Heworth Moor. Prop. and Med. Supt., G. I. Swanson, M.D. Access—York, 1½ miles.

The Friends' Retreat. Res. Med. Supt., Bedford Pierce, M.D. Access—York, 1 mile.

North Riding of Yorkshire Asylum. Res. Med. Supt., J. Tregelles Hingston. Access—York, 2 miles.

York Lunatic Asylum, Bootham. Res. Med. Supt., C. K. Hitchcock, M.D. Access—York, 1 mile.

TRAINING INSTITUTIONS.

Bath.—*Rock Hall House*, Coombe Down, near Bath. A training inst. for backward and imbecile children. Lady Supt., Miss Jane Quinton. Med. Off., J. H. H. Lawrence, M.R.C.S.

Chilcompton (nr. Bath).—*Downside Lodge*. Med. Supt., Alex. Waugh, M.D. Access—Chilcompton, about ¼ mile. *See also p.* 814.

Dublin.—*Stewart Institution*, Palmerston, Chapelizod, Co. Dublin. For imbecile children. Med. Supt., Dr. F. E. Rainsford.

Dundee.—*Baldovan Asylum*. For the Training and Education of Imbecile Children. Matron, Miss Butter. Vis. Phys., Dr. Greig. Access—Baldovan, 1 mile.

Kingston-on-Thames (Surrey).—*Conifers*, for the Education and care of Girls needing special oversight under medical guidance. Med. Supt., Dr. Langdon Down. Access—Hampton Wick station. 8 minutes. *See also p.* 813.

Normansfield, A Training Institution and Home for backward and feeble-minded children and adults of either sex. Med, Supt., Dr. Langdon Down. Access—Hampton Wick, 5 minutes. *See also p.* 813.

Somerleyton. For Education of a few Boys of good social position, subject to epilepsy without mental complications, under medical guidance. Access — Hampton Wick, 10 mins.

Trematon. For the Education of Boys unsuited by mental or moral weakness for an ordinary school. Med. Supt., Dr. Langdon Down. Access—Hampton Wick 5 minutes. *See also p.* 813.

Winchester House, Kingston Hill. For backward and feeble-minded Children. Res. Med. Supt. Dr. Fletcher Beach. Acc.—Norbiton, S.W.R., 15 min. *See p.* 814.

Lancaster.—*Royal Albert Asylum* (for idiots and imbeciles of the Northern Counties. 600 patients). Principal and Sec., Jas. Diggens. Res. Med. Supt., T. Telford-Smith, M.A., M.D. Admission by election, or at various rates of payment. Access—Lancaster, 1 mile.

Brunton House. A Home for special Private Pupils under training at the Royal Albert Asylum. Private Pupils received from all parts of the country. Prin., and Sec.. James Diggens. Access as above.

Larbert (Stirlingshire). — *Scottish National Inst.* (for Education of imbecile Children). Res. Supt., A. A. Skene. Med. Supt., Dr. R. D. Clarkson. Sec. & Treas., A. J. Fitch, Virginia buildings, Glasgow. Access—Larbert, ¾ ml.

Maidstone (Kent).—*Bearsted House*. School and Home for the Feeble-minded. Res. Supt. and Prop., G. T. A'Vard. Access—Bearsted, C, and D.R., 5 minutes.

Polton (Midlothian).—*Mavisbush.* Home and School for Imbeciles. Res. Med. Supt., W. W. Ireland, M.D. Access—Polton.
See also p. 815.

Richmond (Surrey). — *Ancaster House*, Richmond Hill. A small and select Educational Home for backward and mentally-feeble children (*not* idiots). Res. Med. Supt., G. E. Shuttleworth, B.A., M.D. Acc.—Richmond, S.W.R., M.D. & N.L.R., 1 mile.
See also p. 815.

Southgate (Middlesex). — *Brook House.* For Education & Training of the nervous and backward. Res. Med. Prop., Harry Corner, M.D.
See also p. 815.

Inebriate Homes.

LICENSED UNDER THE ACTS.

The patient must sign a Form expressing a wish to enter the Home, before a magistrate. This can be done at the private residence of the patient, or at the retreat, if previous notice has been given. Two friends must also sign a declaration that they consider the patient an "Inebriate" within the meaning of the Acts.

* NOTE:—Bedfont and Chiswick are Roman Catholic Religious Institutions.

MALES ONLY.

Bristol.—*Kingswood Park* (Patients 18). Res. Med. Supt., Dr. C. E. Macnamara, D.P.H., L.R.C.S.I. Res. Supt., L. W. Brimacombe. Access—Mangotsfield 2 miles; Bristol, 4 miles; Bath, 8 miles.
See also p. 817.

Folkestone. — *Capel Lodge* (Patients 10). Res. Prop., E. Norton, M.D. Access—Folkestone Junction, 2 miles.

Kingsland (Herefordshire).—*Street Court* (Patients 10). Res. Med. Supt. and Partner, Dr. W. F. Walker, J.P. Access—Kingsland station, 1½ miles; Leominster, 6 miles.

Rickmansworth (Herts).—*Dalrymple Home* (Patients 20). Res. Med. Supt., R. Welsh Branthwaite, M.D. Access—Rickmansworth station, Metropolitan Railway, ½ mile; L. and N.W. Railway, 1 mile.
See also p. 818.

Sutton Coldfield (Warwickshire).—*Little Aston Hall* (Patients 10). Res. Med. Supt., Fredk. John Gray, M.D. Access—Sutton, 4 miles; Walsall, 6; Birmingham, 11 miles.

Twickenham.—*High Shot House*, (Patients 12). Res. Med. Supt., F. H. Bromhead, B.A., M.B. Camb., M.R.C.S. Eng., L.R.C.P. Lond. Access—St. Margaret's station from Waterloo, 300 yards.
See also p. 818.

MALE OR FEMALE.

Amesbury (Wilts). — *Amesbury House* (Patients 3). Res. Supt. and Med. Officer, P. J. Barcroft, M.R.C.P., F.R.C.S. Access—Salisbury, 8 miles; Porton station, 4 miles.
See also p. 818.

Westgate on-Sea. — *Tower House Retreat* (Patients 20). Prin. and Lic. . Access—Westgate-on-Sea, 5 mins.

FEMALES ONLY.

Bedfont (Middlesex).*—*Spelthorne St. Mary* (Patients 23). Supt., Sister in Charge. Med. Supt., H. W. Newton, M.R.C.S. Access — London, 11½ miles; Feltham, S.W. Rly., 1 mile.

Bristol. — *Royal Victoria Homes*, Horfield Home (Patients 30). Access—Ashley Hill, Montpelier, & Redland stations, 10 minutes; Bristol (Temple Meads) 3¼ miles. Brentry Home (Patients 100). Access—Clifton Down, Redland or Patchway Stations 3 miles. Res. Supt., The Warden. Med. Officers, J. E. Prichard, M.B; Wm. Cotton, M.D.

See also p. 816.

Chiswick.*—*St. Veronica's Retreat* (Patients 70). Under the care of the Sisters of Nazareth. Med. Supt., John J. Atteridge, M.D. Access—Chiswick station, ½ mile.

Fallowfield.—*The Grove Retreat*, near Manchester (Patients 25). Licensee, Mrs. M. Hughes. Med. Offs. A. T. Wilkinson, M.D. and J. W. Hamill, M.D. Access—Fallowfield, 10 minutes.

Stretford (near Manchester).—(Patients 10). Supt. Mrs. E. Pritchard.

Wandsworth.—North St. (Patients 5). Supt., Mrs. E. A. Blackmore.

UNLICENSED HOMES.

FEMALES ONLY *(except Bristol, Hemel Hempstead, and Stonehaven).*

Beckenham (Kent).—41, Manor Road. Supt., The Matron.

Bristol.—*Dunmurry*, Sneyd Park, near Clifton. Res. Med. Prop., Jas. Stewart, B.A., F.R.C.P. Ed., and Mrs. Stewart. Access—Bristol or Clifton Down sta., 1¼ mile from the latter.

See also p. 819.

Cheltenham.—*Court House*, Priory Road. Supt., M. Douglas Scott.

See also p. 817.

Croydon.—*St. Raphael's*, Woodside. Supt., The Matron. Access—Woodside station, Croydon.

Dunvegan, Skye, N.B.—*Cuchulin House*. Res. Med. Supt., Wm. Stephen, M.A., M.D. Access—Kyle Akin.

Edinburgh.—*Queensberry Lodge*. Supt., Major Macartney. Med., Supt., Dr. William Russell. Access—Waverley station, ½ mile.

See also p. 819.

Hemel Hempstead.—*Sanatorium*. Res. Med. Supt., C. A. McBride, M.D. Access—Boxmoor station, ½ mile.

See also p. 817.

Herne Hill.—*Ellison Lodge*, Half Moon Lne. Res. Supt. Miss Hogg.

Hounslow (Middlesex). — *West Holme*. Supt., Matron in Charge. Med. Supt., Dr. G. A. S. Gordon. Access — Richmond (Surrey), 4 miles; Staines (Middlesex), 4 miles; Hounslow, (S.W.R.), ¾. Dist. R. ¼ mile.

Huddersfield (Yorks).—*High Flatts Sanatorium*. Supt., The Matron. Med. Supt., Dr. A. C. J. Wilson. Access—Denby Dale station, 1½ miles; Penistone stat., 3½ miles.

Leicester. — *Melbourne House*. Prop., Mr. H. M. Riley. Med. Supts., C. J. Bond, F.R.C.S. and J. Headley Neale, M.B., M.R.C.P. Station, 2 miles.

See also p. 819.

Tower House. Prop., Mrs. Theobald. Med. Supt., Dr. Clarke. Access — Leicester station, 1½ miles.

See also p. 816.

Liverpool.—*Temperance Home*, 318, Upper Parliament Street. Supt., Miss A. J. Wilson.

Musselburgh (N.B.)—*View Mount*, Lavenhall. Apply to the Manager.

Reigate (Surrey).— *Duxhurst.* Supt., Sister in charge. Med. Supt., A. Walters, M.R.C.S. Access—Reigate, 4 miles. *See also p.* 814.

Stonehaven (N.B.) — *Elsick House.* Prop., D. Forbes. Med. Supt., Dr. Leslie. Access—Newton Hill, 1½ miles. *See also p.* 819.

Sydenham.—*The Tor.* Hon. Sec., Mrs. Atkinson. Med. Supt., Dr. Gardener.

Torquay. — *Temple Lodge.* Hon. Sec., Mrs. Erskine. Med. Supt., Dr. T Finch.

West Derby (near Liverpool).— *Vergmont Sanatorium.* Supt., Miss Mary M. Hocking. Hon. Med. Offis., Dr. H. Harvey and Dr. C. Thurstan Holland. Access—West Derby, ¼ mile; Tue Brook. ¼ mile; Edge Hill, 3 miles.

Hydropathic Establishments of Great Britain.

We wish to make this list complete, but it is impossible when some Proprietors do not return our letter of enquiry which is *stamped for reply*. This will account for some omissions in the present edition.

Aberdeen. — *Deeside Hydropathic,* Heathcot, near Aberdeen. Res. Med. Supt., Alex. Stewart, M.D., LL.D., F.S.Sc. Access—Rail to Aberdeen, thence by cab or omnibus. Hydropathic conveyance meets any train when sent for, distance 5 miles. *See also p.* 825

Baslow. — *Baslow Hydropathic,* near Chatsworth Park. Res. Med. Supt., E. M. Wrench, F.R.C.S. Access—Bakewell, 4 miles by 'bus.

Bath. — *Lansdown Grove House,* Lansdown, Bath. (Invalids only). Access—Mid. or G.W. sta, Bath. about 1 mile. *See also p.* 824.

Ben Rhydding. — *Ben Rhydding,* Near Leeds, Bradford, or Harrogate. Phys. Thos. Johnstone, M.D. Access—Station, a few hundred yards.

Bishops-Teignton (near Teignmouth).—*The South Devon Health Resort.* Prop., C. F. Carpenter. Med. Supt., J. Wood, M.B. Access—Teignmouth 2½ ml. *See also p.* 827.

Blackpool.—*Matlock Hydro.* Station Road. Prop., W. Bramald. Access—3 minutes from South Shore station.

Bournemouth (Hampshire).— *Bournemouth Hydropathic.* Res. Prop., W. J. Smyth, M.D. Access—East sta. 1½ mile; West sta. ¼ mile. *See also p.* 827.

Southcliffe. Res. Manager, E. P. Philpots, M.D.

Bridge of Allan.—*Bridge of Allan Hydropathic Co.* Mngr, H. B. Higgins. Access—Station, ½ mile.

Bristol.—*The Bristol Hydropathic* (formerly Bartholomew's Turkish Baths), College Grn. Res. Phys., W. J. Spoor, M.B., M.R.C.S.

Bute.—*Kyles of Bute Hydropathic,* Port Bannantyne. Man., A. Menzies. Med. Supt., Dr. A. J. Hall. Access—Clyde steamers call daily.

Buxton.—*Hydropathic and Winter Residence.* Prop., Mr. H. Lomas. Access—Station, 4 minutes.

Clevedon (Somerset). — *Clevedon Hydropathic.* Med. Supt., R. T. Morgan. Access—Clevedon, ½ mile.

Clifton (near Bristol),—*Clifton Spa & Hydropathic.* Res. Phys. C. J. Whitby, M.D. Access—Clifton Down station, 1 mile. *See also p.* 823.

Colwyn Bay (North Wales).—*Colwyn Bay Hydropathic and Winter Residence.* Med. Supt., Dr. W. M. V. Williams. Access—Colwyn Bay station, 7 minutes.

Cork.—*St. Ann's Hill Hydropathic.* Res. Phys., Dr. A. G. Bennett. Access—Blarney Station, 2½ miles. Muskerry Light Railway from Cork, station on grounds.

Crieff.—*Strathearn House* (17 miles from Perth). Res. Med. Supts., Thos. H. Meikle, M.D., J.P., and T. Gordon Meikle, M.B., C.M. Access—Crieff station, 1 mile.

Dunblane. — *Dunblane Hydropathic,* Perthshire. Res. Phys. Access—Dunblane. *See also p.* 822.

Eastbourne. — *The Eastbourne Hydropathic,* South Cliff. Cons. Phys., Henry Habgood, M.D. Access—Eastbourne.

Edinburgh.—*Hydropathic.* J. Bell, Man. Dir. Access—Merchiston, 1 mile; Waverley, 3 miles.

Folkestone.—*Bathing Establishment Co., Limited.*

Forres.—*Cluny Hill Hydropathic.* Access—Forres station, 1 mile; Inverness, 24 miles.

Grange-over-Sands. — *Hazelwood Hydropathic.* Phys., Richard Lowther, M.D. Access—Carnforth, L. & N.W.R., and thence by Furness Railway. Grange-over-Sands, ¼ mile. *See also p.* 826.

Harrogate (Yorkshire).—*Harlow Manor Hydro.* Man. Mr. Fenn, Med. Supt., Dr. Dimmock.

The Cairn Hydropathic. Near Leeds and Bradford. Man., Mr. Alderson. Access—Harrogate, 1 ml.

The Harrogate Hydropathic. Phys., Geo., Tennant, M.B. Access—Harrogate, ½ mile.

Hastings (St. Leonards). — *The Hastings Hydropathic and Spa.* Access—Hastings station, 1 mile.

Hexham (Northumberland).—*Tyndale Hydropathic.* Prop., F. G. Grant. Med. Supts., Thos., Stainthorpe, M.D. and Dr. Stewart. Access—Hexham, 1 mile; Newcastle, 19 miles.

Ilkley (Yorkshire). — *Craiglands Hydropathic.* Props., Dobson, Bros. Res. Med. Supt., Henry Dobson, M.D., C.M.

Ilkley Wells House Hydropathic. Med., Supt. Thos. Scott, M.D. Access—Ilkley station, ¼ mile.

The Spa Hydropathic. Near Leeds and Bradford. Med. Supt., Thos. Johnstone, M.D. Access—Ilkley, Yorks, M., G.N. & N.E.R., Ilkley, 3 minutes.

Kilmalcolm (Renfrewshire).—*Hydropathic.* Manageress, Miss G. Thomson. Access—Greenock, 7 miles; 16 miles from Glasgow, S.W.R.

Limpley Stoke (near Bath).—*West of England Hydropathic.* Res. Med. Supt., T. G. Drake, L.R.C.P. Access—Limpley Stoke station.

Lincoln (near Woodhall Spa).—*Northcote Hydro.* Apply secy.

Liverpool.—*New Hydro Hotel,* West Kirby. Res. Med. Supt., Dr. P. J. Wilkinson. Access — West Kirby station, 5 miles.

Llandudno.—*Hydropathic and Winter Residence.* Med. Supt., James Craig, M.B. Access—Llandudno Station, 5 minutes.

Malvern.—*The Malvern Hydropathic* (late Dr. Rayner's). Res. Prop., J. C. Fergusson, M.D. Access—Gt. Malvern station, ½ mile. *See also p.* 821.

Wyche-side Hydropathic. Res. Phys., Dr. Grindrod. Access—Malvern Wells G.W.R., ½ mile

Matlock.—*Darley Dale Hydropathic.* Prop., William Atkin. Med. Supt., Dr. W. Moxon. Access—Matlock Bridge station, 1¾ mile; Darley Dale, ½ mile.

Matlock House Hydropathic. Matlock Bank. Med. Supt., W. Moxon, M.D., M.R.C.S. Access—Matlock Bridge (M.R.), ¼ mile. *See also p.* 828.

Smedley's Hydropathic, Matlock Bridge. Phys., W. C. Sharpe, M.B., & T. D. Luke, M.B., Res. Access—Matlock Bridge station, ½ mile; Omnibus. *See also p.* 820.

Melrose.—*Waverley Hydropathic.* Con. Phys., Dr. Wade. Access—Melrose station, 1 mile.

Moffat.—*The Moffat Hydropathic.* Prop., J. Farquharson. Med. Supt., Dr. T. B. White.

Peebles. — *Peebles Hydropathic.* Access—Peebles station, 1 mile.

Pitlochry. — *Atholl Hydropathic.* Prop., W. Macdonald. Closed in winter. Access—Pitlochry 1 ml.

Rhyl.—*North Wales Hydropathic.* Med. Supt., Dr. R. M. Pritchard.

Rothesay.—*Glenburn Hydropathic.* Res. Phys., Dr. Philp.
See also p. 822.

Scarborough.—*Hydropathic,* West Bank. Prop., R. B. D. Wells. Med Atten., Dr. Megginson. Access—Scarborough station (N.E. Ry.), ¼ hour. *See also p.* 824.

Shandon. — *Shandon Hydropathic.* Med. Supt., Dr. Douglas Reid. Access—N.B.R. and Steamer.

Southport (Birkdale Park).—*Smedley Hydropathic.* Med. Supt., J. G. G. Corkhill, M.B., B.Ch. Vict., M.R.C.S. Eng. Southport 1½ miles; Birkdale, ⅓ mile.
See also p. 825.

"Sunnyside" Hydropathic. Prop., J. Boocock. Phys., Dr. F. A. Ernest Barnardo. Access—Southport stats., ½ mile. *See also p.* 828.

The Southport Limes Hydropathic (51, Bath Street). Phys., Dr. A. B. Kenworthy. Access—Chapel St., Lord St., or Central stat. ¼ ml.

Tunbridge Wells.—*The Spa.* Phys., Dr. G. L. Pardington. Access—Station, about ½ mile.
See also p. 827.

Ulverston and Barrow-in-Furness.—*Conishead Priory Hydropathic.* Access — Carnforth or Hellifield stations.

Watford.—*The Hall,* Bushey. Res. Phys., J. G. Gordon-Munn, M.D., Access—L. & N.W.Ry. 1 mile.

Wemyss Bay.—*Wemyss Bay Hydropathic.* Med. Sup., Ronald Currie, M.D. Access—Wemyss Bay sta., ½ mile.

Windermere. — *Windermere Hydropathic,* 9 miles from Kendal. Access—Windermere (L. & N.W. R.) 1 mile. Furness Rly. (Bowness Landing), ¼ mile. Pier on Lake, about 300 yards.

Private Homes for Invalids.

Bournemouth.—*Victoria & Bournemouth Nurses' Institute & Home Hospital.* Matron, C. Forrest. Access—West station, 2 minutes.

Brighton.—*Stavely House,* 24, Wilbury Road, Hove. Access — Brighton & Hove stations, 1 mile

Evesham (Worcs.) — *Greenhill.* Principal, Mrs. Hoddinott. Acc. —M. & G.W.R. stat., Evesham.
This Home is specially adapted for Medical, Surgical, and Accouchement cases, also, Weir-Mitchell and Nauheim Treatment. Moderate terms. House facing Cotswold Hills & surrounded by extensive grounds. Resident trained Nurses.

Farnham, Aldershot. — *Heather Brow.* Med Supts., Dr. A. Lyndon and Dr. Leslie.

Hadlow Down (Buxted, Sussex.)—*South Beacon.* Prop., Philip H. Harmer. *See also p.* 812.

Jedburgh.—*Abbey Green.* Res. Prop., Wm. Blair, M.D. Access—N. B. R., Jedburgh.
See also p. 799.

London.—*Private Medical and Surgical Home,* 23 & 25, Clapton Common. Res. Med. Supt., Dr. Henry J. Buck.

Stanmore, Middlesex.—*Mary Wardell Convalescent Home for Scarlet Fever.* Hon. Sec., Miss M. Wardell. *See also p.* 798.

Swansea, Langland Bay.—Prop., Miss Thornton. *See also p.* 800.

Nursing Institutions and Associations.

The information given here is necessarily brief: but further particulars may be added, in small type, at the rate of **2/-** per dozen words.

LONDON.

Belgravia Nursing Home, 39 and 41, Royal Avenue, Chelsea, S.W. Principals—Mrs. Walter Pye and Mrs. Richard Crawley.
Surgical, Medical (non-infectious), Confinement, & Weir-Mitchell cases received. Terms from 4 to 12 guineas per week. Fully qualified Nurses also sent out.

Blackheath Nursing Inst., 9, Montpelier Row, Blackheath, S.E. Supt.—Miss Duncan.

Brompton Hosp. Private Nursing Department, S.W. Miss C. Davidson, Lady Supt.

Camberwell District Nursing Assoc. for Nursing the Sick Poor Free of charge. Knatchbull Rd., S.E. Supt.—M. Dodds.

Clapham, Brixton & Surrey Inst. of Trained Nurses, 210, Clapham Road, S.W. Supt., Mrs. A. M. Pyle.

Clapham Common Home & Nursing Inst., 45, South Side, Clapham Common, S.W. Supt., Mrs. Chapman.

Colonial Nursing Assoc., Imperial Institute, London, S.W. Hon. Sec., Mrs. Francis T. Piggott.

Elgin Nursing Inst., The, 258, Elgin Avenue, W., and Chalet Santa Croce, Alassio, N. Italy. Supt., Miss Ellison; Vice-Supt., Mrs. Larkins. *See also p.* 799.

General Nursing Institute, 5, Mandeville Place, Manchester Square, W.

Guy's Hospital Trained Nurses' Inst., 14, St. Thomas Street, S.E.

Haggerston and Hoxton District Nursing Assoc., 80, Nichols Sq., Hackney Road, N.E. Supt.—Miss A. Wells.

Hamilton Assoc. for Providing Trained Male Nurses, 57, Park St., Grosvenor Sq., W. Supt.—G. H. Henlen. *See also p.* 800.

Hampstead Hospital Nursing Staff, Parliament Hill, N.W. Lady Supt., Mrs. Ebbetts.

Hanover Inst. for Nurses and Private Hosp., 22, George St., Hanover Square, W. Lady Supt., Miss Sophia Walker.
See also p. 797.

Holy Cross Society of Trained Nurses, 2 Ladbroke sq., Notting Hill, W. Lady Supt., Sister Clare.

Hospital for Sick Children, Private Nursing Home, Gt. Ormond St., W.C. Matron, Miss Gertrude Payne.

Ings House Nurses Co-operation, 81, New Bond Street, W.

London Association of Nurses, 123, New Bond St., W. Lady Supt., M. Firth.

London Homœopathic Hospital Nursing Inst., Great Ormond Street, W.C. Lady Supt., Miss Brew.

London Hospital Private Nursing Inst., Whitechapel Road, E. Matron, Eva C. E. Luckes.

Male Nurses (Temperance) Co-operation, 10, Thayer Street, Manchester Square, W. Sec., F. Rouse.

Maternity Charity and District Nurses' Home, Howard Road, Plaistow, E. Monthly Nurses supplied. Matron, Miss K. Twining.

Medical & Surgical Home & Nursing Inst., 39 & 41, Boundary Road, N.W.

Metropolitan Nursing Assoc., 23, Bloomsbury Sq. For nursing the Sick Poor. Supt., Miss Gray.

Middlesex Hospital Institute, 17, Cleveland Street, W.

Midwives' Inst., 12, Buckingham St., Strand, W.C. Apply Secretary.

Mildmay Deaconess Inst., Nursing branch, 9 & 10, Newington Green, N. Supt., Miss Dean.

Trained Sisters and Nurses are sent to private families, on application to Resident Superintendent, as above.

See also p. 798.

Nervous & Mental Disorders, Nurses for, 1 Northrop Street, Grosvenor Sq., W. Supt., Mrs. Caldwell.

Nursing Sisters' Inst., 4, Devonshire Sq., E.C. Lady Supt., Miss Steuart.

Paddington and Marylebone District Nursing Association, 4, Randolph Road, W. Supt. Miss K. Perssé. Hon. Secs., Mr. W. F. Richmond and Miss G. H. Richmond.

Pembroke Nursing Inst. and Home for Paying Patients, 116, Adelaide Road, N.W. Matron, S. Gee Wright, cert. L.O.S.

Piccadilly Association of Trained Nurses, 184, Piccadilly, W.

Queen Victoria's Jubilee Inst. for Nurses, St. Katherine's, Regents Park, N.W. For supplying trained District Nurses for the Poor. Sec., Alice Martin Leake.

Registered Nurses' Society, 269, Regent Street, W. Sec., Miss Cartwright.

Royal British Nurses' Assoc., 17, Old Cavendish Street, W.

Sloane Square, S.W., Nurses' Home. Supt., Miss Culverhouse.

St. Bartholomew's Hosp. Nurses Institute, 13, West Smithfield.

St. John's, 21, Drayton Gardens, S. Kensington. Sist. Superior, A. J. Beaver.

St. John Ambulance Association, St. John's Gate, Clerkenwell.

St. John's House, 7 & 8, Norfolk St., Strand. Supt., the Sister Superior. Sec., G. Frere, Esq.

Southwark, Newington & Walworth District Nursing Assoc. 37, West Sq., S.E. Supt., L. L. Ward.

Up-Country Nursing Assoc. for Europeans in India. Hon. Sec., Major-Gen. J. Bonus, R.E., The Cedars, Strawberry Hl., Middlesex

Victoria Hospital, Nursing Staff, Chelsea, S.W. Matron, Miss Hamilton.

Medical and Surgical Nurses supplied for all cases, 42/- per week.

Westminster Home for Nurses, 27, Queen Anne's Gate, S.W. Supt., Miss J. Southwell.

Weston's (Mrs.) Medical and Surgical Home and Nurses' Inst., Blenheim House, Kew Rd., Kew Gardens. Seaside Home, Ealing Lodge, Norfolk Road. Littlehampton. Sup. Mrs. Weston

Wigmore Nurses' Co-operation, 59, Weymouth St., W. Princ., Florence Burrell.

PROVINCIAL.

Ayr.—*Ayr, Newton and Wallacetown Sick Poor Nursing Association,* 22, Academy St. Sec., Mrs Hutton.

Bath.—*Home for Trained Nurses,* 44, Rivers St. Lady Supt., Miss F. E. Latham.

Royal United Hospital Private Nursing Instit., Matron, Mrs. Mathias.

Ordinary Cases, per week 25/-. Operation Cases, per week 31/6. Infectious Cases (Typhoid included), per week 42/-.

Belfast.—*Nurses' Home and Training School,* Frederick St. Lady Supt., Miss Newman.

Birmingham.—*Birmingham & Midland Homœopathic Hospital.* Lady Supt., Miss Bean.

District Nursing Society, 94, Moseley Road; Lady Supt., Miss Waller. 98, Newhall St.; Lady Supt., Miss Peterkin.

Queen's Hospital, External Nursing Depart. Supt., Charlotte Elkington.

Bournemouth.—*Victoria & Bournemouth Nurses' Inst. & Home Hosp.*, Cambridge Rd. Branch Home, Wootton Ldg, Boscombe. Matron, Miss Forrest.

Bridlington.—*Lloyd Cottage Hosp.* Supt., Miss A. Maud Jones.

Brighton.—*Home for Trained Nurses and Paying Patients*, 92, King's Road, Supt. Mrs. Frazer.

Male and Female Nurses, 115, Queen s Road, Brighton, and 73, Clifton Road, Worthing. Secy., Edward Yates.

Sussex County Hospital Private Nursing Inst. Matron, Katharine Scott.

Bristol.—*District & Private Nurses' Home*, 6 Berkeley Sq., Clifton. Lady Supt., Florence E. Lloyd.

General Hospital.

Nurses' Co-operation and Home, Westbourne Place, Clifton. Supt., Miss Rogers. *See also p.* 799.

Nurses' Training Inst. & Home, 23 & 24, Richmond Ter., Clifton. Lady Supt. Mrs. Nolan.

Telephone No. 5555. Telegraphic Address: "Nurses, Bristol." Fully Trained Mental, Medical, Surgical, and Monthly Nurses. Surgical Patients received at from £4 4s. to £6 6s. weekly.

See also p. 799.

Royal Infirmary Private Nursing Inst. Matron, Miss A. B. Baillie.

Broughton and Kersol.—*Nursing Home and Trained Nurses' Institute.* Supt., Elsie French.

Burton-on-Trent.—*Nursing Inst.* Supt., Miss E. Carson.

Ordinary Cases, per week £1 1 0
Infectious ,, ,, £1 11 6
Monthly ,, four weeks £6 6 0

Cambridge.—*Home for Nurses*, 13, Fitzwilliam St. Lady Supt., Miss Rogers.

Cheltenham.—*General Hospital* Private Nursing Staff. Matron, Miss M. E. Howes.

Medical, Surgical and Monthly Nurses can be supplied, on application, by letter or telegram, to the Matron. Telephone No. 26.

Chester. — *District Nurses' Home*, Water Tower St. For providing Trained Nurses for the Poor in their own Homes. Deaconess-in-charge, Sister Mabel.

Cork.—*County and City of Cork Hospital for Women and Children.* Lady Supt., Miss M. H. Baxter.

Nursing Institution, 11, South Mall. Hon. Lady Supt., Miss Woodroffe.

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Crapper, T. & Co. 50 to 54, Marlborough Road, S.W.
Doulton & Co. Albert Embankment
Jennings, Geo., 65 & 67, Lambeth Palace Road, S.E.
Jones, John, 40, Sydney St., Chelsea
Llewellins & James, Bristol
McDowall, Steven & Co. (Lim.), 4, Upper Thames Street, E.C.
North British Plumbing Co. 86, Newman St. Oxford St. W.
Reid, A. W. & Co. 69, St. Mary Axe
Sanitary Engineering & Ventilation Co. 65, Victoria Street, S.W.
Winser & Co. 52, Buckingham Palace Road, S.W.

Sanitary Surveyors.

Carter, H. C.E. 65, Victoria St. S.W.
Hallett Walter & Co., 102 & 104, Harrow Road, W.
London & Suburban Sanitary Survey Association, 34, Victoria St.
Sanitary Survey Association, 85, Gower Street, W.C.
Sanitary Engineering & Ventilation Co. 65, Victoria Street, S.W.
Tidman, Ed., C.E. 34, Victoria St., S.W.

Surgical Instrument and Appliance Manufacturers.

Arnold & Sons, West Smithfield
Bailey W. H. & Son, 38, Oxford St.
Brady & Martin, Newcastle-on-Tyne
Carter A. Lim., 47, Holborn Viaduct
Carter, John, 6A, New Cavendish Street, W.
Cocking, J. T. Plymouth
Coles, William & Co., 225, Piccadilly, W.
Cox, Alfred, 108, New Bond St., W.
Coxeter, James & Son, 4 and 6, Grafton Street, W.C.
Dinneford & Co., 180, New Bond Street, W.
Domen Belts Co. 456, Strand, W.C.
Down Bros., 21, St. Thomas Street
Ernst, Fr. Gustav, 80, Charlotte Street, Fitzroy Square, W.
Evans & Wormull, 31, Stamford St S.E.
Fannin & Co. Grafton St. Dublin
Ferris & Co. Bristol
Formalin Hygienic Co., Lim., St. Mary-at-Hill, E.C.
Gale, George & Sons, Birmingham
Galen Manufacturing Co. Lim., Ladywell, S.E.
Gray, Joseph & Son, Truss Works, Sheffield
Grossmith, W. R. 110, Strand
Hawksley, T. 357, Oxford St. W.
Haywood J. H., Nottingham
Hills & Co. 46, Newcomen Street, Boro', S.E.
Hooper & Co. 7, Pall Mall, East
Hutchinson, W. & H. Sheffield
Huxley, E. 13, Old Cavendish St., W.
Krohne & Sesemann, 8, Duke Street, Manchester Square, W.
Lynch & Co. Lim. 192, Aldergate St.
Maw, S. Son & Thompson, 7 to 12, Aldersgate Street, E.C.
Mayer & Meltzer, 71, Great Portland Street, W.
Mendham & Co. Bristol
Montague, J. H., 101, New Bond Street, W.
O'Connor Extension Co., 2, Bloomsbury Street, W.C.
Reynolds & Branson, 13, Briggate, Leeds
Salmon, H. R. 42, Beaumont St. W.
Salmon, Ody & Co. 292, Strand
Schall, K. 55, Wigmore Street, W.
Schramm, K. R. Gt. Castle Street, Cavendish Square, W.

Statham, H. & Co. Corporation St. Manchester
Teff & Co., Bridge Street, Bristol
Ward, John, 246 & 247, Tottenham Court Road
Weiss, J. & Son, 287, Oxford Street
Wright, A. J., 318, Upper Street, N.
Wright, T. G. Denmark Street, Bristol

Vaccine Lymph.

Lymph is supplied, free ot charge, on application to National Vaccine Establishment, New Government Buildings, Whitehall, London, S.W.
Association for the supply of pure Vaccine Lymph, 12, Pall Mall East, S.W.
Birmingham Calf Lymph Establishment, 204, Victoria Road, Aston
Dakin Bros., 87A, Leadenhall St.
Fannin & Co. Dublin
Faulkner, W. 16, Endell Street Bloomsbury, W.C.
Ferris & Co. Bristol
Hatrick, W. & R. & Co., Glasgow.
Hime, Dr., Bradford, Yorks.
Rebman, F. J. 129, Shaftesbury Avenue, W.C.
Renner's (Dr.) Establishment, 186 Marylebone Road, N.W.
Somerville, R. & H. 10, Spring Gardens, Edinburgh
Surgical Supply Assoc., Manchester
Têtu, M. 16, Surrey Square, Old Kent Road, S.E.
Wyleys, Lim., Coventry

Medical and Scientific Newspapers, etc.

American Journal of the Medical Sciences—Monthly, 20/- per annum—J. C. Nimmo, 14, King William Street, W.C.
Analyst—Monthly 6d.—Baillière & Co. King William Street, W.C.
Anatomy and Physiology, Journal of —Quarterly, 24/- per annum—Griffin & Co., Exeter St., W.C.
Annals of Surgery—Monthly 2/- — Cassell & Co., Lim., Ludgate Hill, E.C.
Anthropological Journal—Quarterly 5/—Kegan Paul & Co. Charing Cross Road, W.C.
Balneology, &c., Journal of—Quarterly — Bale Sons, and Danielsson, Lim., Great Titchfield Street, W.
Birmingham Medical Review — Monthly 6d—Hall & English, High Street, Birmingham
Botanical Magazine—Monthly 3/6 per annum—Reeve & Co. 5, Henrietta St., Covent Garden
Botany, Journal of—Monthly 1/8—West, Newman & Co. 54, Hatton Garden
Brain—Quarterly 3/6—Macmillan & Co. Lim., St. Martin St., W.C.
Braithwaite's Retrospect — Half Yearly 6/6—Simpkin & Co. Stationers' Hall Court
Bristol Medico-Chirurgical Journal —Quarterly 1/6—J. W. Arrowsmith, Bristol
British and Colonial Druggist —Weekly 3d—44 Bishopsgate Street without, E.C.
British Gynæcological Journal — Quarterly 3/6 — Bale Sons, & Danielsson, Ltd., Gt. Tichfield Street, W.
British Homœopathic Society, Journal of — Monthly, 2/6—Bale Sons, & Danielsson, Gt. Titchfield Street
British Medical Journal—Weekly 6d—429 Strand, W.C.
Bulletin of Pharmacy—Monthly, 4/- per quarter—W. M. Warren, 21, North Audley Street, W.
Caledonian Medical Journal—Quarterly 1/-—Alex. Macdougall, 68, Mitchell Street, Glasgow.
Chemical Industry—Journal of Society of—Monthly—East Harding Street, E.C.
Chemical News—Weekly 4d—6, Creed Lane

Chemical Society, Journal of the—Monthly, 30/- per annum—Gurney & Jackson, 1, Paternoster Row, E.C.

Chemist and Druggist, the—Weekly 4d, 10/- per annum—42, Cannon Street

Chemists and Druggists, Register of—Annual 5/—17, Bloomsbury Square

Clinical Journal—Weekly 3d—Bartholomew Close

Dental Association, Journal of British—Monthly 6d—Baillière and Co., King William Street

Dental Record—Monthly 6d—6, Lexington St., Golden Square

Dental Science—British Journal of—1st and 15th, 6d—J. P. Segg & Co. 291, Regent Street, W.

Dentist, the—Monthly, 7/- per annum—13, Cursitor Street, E.C.

Dentist's Register—Annually 3/9—General Medical Council, 299, Oxford Street, W.

Dermatology—British Journal of—1/- Monthly—H. K. Lewis, 136, Gower Street, W.C.

Dublin Journal of Medical Science—Monthly 2/- —Fannin & Co.

Edinburgh Hospital Reports—Yearly 12/6—Young J. Pentland, Teviot Place

Edinburgh Medical Jour. - Monthly 2/—Young J. Pentland, Edinburgh

Entomologist, Monthly Magazine—Monthly 6d — 1, Paternoster Row, E.C.

Entomologist — Monthly 6d — 23, Paternoster Row, E.C.

Geological Magazine—Monthly 1/6—37, Soho Square, W.

Geological Society, Journal of—Quarterly 5/—

Geologist's Association's Proceedings—every 2 months 1/6—E. Stanford, 27, Cockspur Street

Glasgow Medical Journal—Monthly 2/—A. Macdougall, Mitchell Street, Glasgow

Guy's Hospital Gazette--Fortnightly 6d—42, Southwark Street.

Guy's Hospital Reports—Yearly 10/6—J. & A. Churchill, 7, Great Marlborough Street

Health—Weekly 1d—18, Catherine Street, W.C.

Homœopathic Review—Monthly 1/—E. Gould & Son, Lim., 59, Moorgate Street, E.C.

Homœopathic World—Monthly 6d—12, Warwick Lane, E.C.

Hospital—Weekly 2d—28 and 29, Southampton St., W.C.

Ibis, the—Quarterly 6/- —Gurney & Jackson, 1, Paternoster Row

Irish Medical Directory—Annually 6/- —Baillière & Co. 20, King William Street, W.C.

Knowledge—Monthly 6d—326, High Holborn

Lancet—Weekly 7d—423, Strand, W.C.

Laryngology, Rhinology, & Otology, Journal of—Monthly 2/—129, Shaftesbury Avenue, W.C.

Laryngoscope, the—Monthly 1/— 32, Paternoster Row, E.C.; J. Wright & Co. Bristol

Linnæan Society, Journal of — Annually 3/—Longmans & Co.

Linnæan Society, Transactions—Irregular. Price varies—Society's Apartments, Burlington House

Liverpool Medical Chirurgical Journal 3/6—Half-yearly — H. K. Lewis, Gower Street, W.C.

Medical Age—Semi-monthly, 6/- per annum—W. M. Warren, 21, North Audley Street, W.

Medical Annual—Annually 7/6—J. Wright & Co. Bristol

Medical Chronicle—Monthly 1/6 — John Heywood, Manchester

Medical Directory—Annually 14/—J. & A. Churchill, 7, Great Marlborough Street

Medical Magazine—Monthly 2/6—Southwood, Smith & Co. 62, King William Street, E.C.

Medical Press & Circular—Weekly 5d—A. A. Tindall, 20, King William Street

Medical Register—Annually 6/— 299, Oxford Street, W.

Medical Student's Register—Annually 2/6—54, Gracechurch St.
Medical Temperance Review—Monthly 6d–33 Paternoster Row
Medical Times & Hospital Gazette—Weekly 2d—11, Adam St., W.C.
Medicine—Monthly, 8/- per annum—W. M. Warren, 21, North Audley Street, W.
Mental Science, Journal of—Quarterly 5/-—J. and A. Churchill, 7, Great Marlborough Street
Meteorological Record—Quarterly—E. Stanford, 27, Cockspur St.
Meteorological Society, Journal of—Quarterly 5/-—E. Stanford, 27, Cockspur Street, S.W.
Microscopical Science, Quarterly Journal of—10/-—J. and A. Churchill, 7, Great Marlborough Street
Microscopy and Natural Science, International Journal of—Quarterly 2/6—Baillière & Co. King William Street
Mind—Quarterly 3/-—Williams & Norgate, Henrietta Street, W.C.
Monthly Extract of British Journal of Dental Science—Subscribers only—322, 324, Regent St., W.
Montreal Medical Journal—Monthly 1/6—Baillière & Co., King William Street, E.C.
Naturalist—Monthly 6d—Henrietta Street, W.C.
Nature—Weekly 6d—Macmillan & Co. Lim., Bedford Street
Nervous and Mental Diseases—Quarterly, 18/- per annum—Kegan Paul & Co. Charing Cross Road, W.C.
New Sydenham Society—Irregular—Subscription 21/-—H. K. Lewis, 136, Gower Street
New York Medical Record—Weekly 6d—Kegan Paul & Co., Charing Cross Road, W.C.
New York Medical Journal—Weekly 33, Bedford Street, W.C.
Nursing Directory—Annually 5/—28 & 29, Southampton Street, W.C.
Nursing Record—Weekly 1d—11, Adam Street
Odontological Society, Transactions of—Monthly during Sessions 2/6—87, Great Titchfield Street
Ophthalmic Hospital Reports—Yearly 5/-—J. & A. Churchill, 7, Great Marlborough Street
Ophthalmic Review—Monthly 1/-—J. & A. Churchill, 7, Great Marlborough Street
Ophthalmological Society's Transactions—Yearly 12/6—J. and A. Churchill, 7, Great Marlborough Street
Pathology & Bacteriology, Journal of—Quarterly—Y. J. Pentland, West Smithfield, E.C.
Pediatrics — Fortnightly 8/- per annum—Great Titchfield Street
Pharmaceutical Journal — Weekly 4d—5, Searle Street, Lincoln's Inn, W.C.
Pharmaceutical Society, Calendar of—Annually 1/- — 17, Bloomsbury Square
Pharmacy, Monthly Magazine of—Monthly 6d—Burgoyne, Burbidges & Co. 16, Coleman St.
Physiology, Journal of—21/- per volume—Ave Maria Lane
Practitioner — Monthly 1/- — Cassell & Co. Ludgate Hill, E.C.
Psychical Society, Proceedings of the –Occasionally–Kegan Paul and Co. Charing Cross Road, W.C.
Public Health—Monthly 1/-—129, Shaftesbury Avenue, W.C.
Quarterly Medical Journal, 2/-—Pawson & Brailsford, Sheffield
Quekett Microscopic Club, Journal of—Half-yearly 3/6—Williams and Norgate, 14, Henrietta St.
Registrar General's Return of Births, Deaths & Marriages—Weekly, Quarterly & Annually — Eyre & Spottiswoode, 9, East Harding Street, E.C.
Royal College of Surgeons' Calendar—Annually 1/- — Taylor and Francis, Red Lion Court, Fleet Street, E.C.
Royal Microscopical Society, Journal of—Bi-Monthly, 30/- per annum—Williams & Norgate, Henrietta St., Covent Garden.

Sanitary Journal—Monthly 1/- — North Frederick St., Glasgow

Sanitary Record—Weekly 3d; 10/- per annum—5, Fetter Lane

Scalpel, The — Monthly, 7/6 per annum—Simpkin & Co., Paternoster Row

Science Gossip — Monthly 4d — Simpkin & Co., Paternoster Row

Science—Weekly, per annum 22/— Kegan Paul & Co., Charing Cross Road, W.C.

Science Progress—Quarterly, 10/6 per annum—28 & 29, Southampton Street, W.C.

Scientific American — Weekly, per annum 18/— Kegan Paul & Co. Charing Cross Road, W.C.

Scientific American Supplement—25/- per annum—Kegan Paul & Co., Charing Cross Road, W.C.

Scottish Medical & Surgical Journ. —Monthly 2/— W. F. Clay, Teviot Place, Edinburgh

State Medicine, Journal of—Monthly 2/—Baillière & Co., King William Street, W.C.

St. Bartholomew's Hospital Reports —Yearly—15, Waterloo Place

St. Mary's Hospital Gazette — Monthly —Morton & Bart, 187, Edgware Road, W.

St. Thomas's Hospital Reports—Yearly 8/6—J. & A. Churchill, 7, Great Marlborough Street

Therapeutic Gazette—Monthly, 10/- per annum—W. M. Warren, 21, North Audley Street, W.

Therapist, the—Monthly 6d—1, 3, and 5, Marylebone Lane, W.

Treatment — Fortnightly 6d—129, Shaftesbury Avenue, W.C.

Veterinary Journal—Monthly 1/6—Baillière & Co., King William Street, W.C.

West London Medical Journal—Quarterly — Bale Sons, and Danielsson, Ltd., Great Titchfield Street, W.

Westminster Hospital Reports—Yearly 8/—7, Gt. Marlborough Street

Year Book of Pharmacy—Annually 10/—J. & A. Churchill, 7, Great Marlborough Street

Year Book of Treatment—Annually 7/6—Cassell & Co.

Zoological Record—Annually 30/—Gurney & Jackson, Paternoster Row

Zoological Society of London, Proceedings—Quarterly 3/- plain; 12/- coloured—Longmans & Co Paternoster Row

Zoologist—Monthly 1/— Simpkin and Co. Paternoster Row

The Medical Annual Note Book.

It is easier to make a note of a thing than to remember *where* the note was made. The following pages are indexed under their respective headings, and any note can be immediately found when required.

NOTES.

Copy here any formula or fact you wish to keep for reference. (These pages are indexed under the word "Notes.")

Estab. 1875.

MEDICAL TRANSFER AGENCY.

MR. PERCIVAL TURNER,

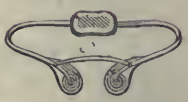
(*Son of a well-known Practitioner, and Author of "Guide to Medical Profession,"*

4, Adam Street, Adelphi, LONDON, W.C.

Partnerships and Practices negotiated. Assistants and *Locum Tenens* introduced. Arbitrations, Valuations, Investigations and Accountancy work. Printed Terms on application.

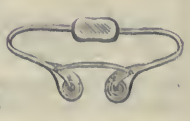
NOTES.

COLES' SPIRAL SPRING TRUSS:
INVENTORS AND PATENTEES,
WILLIAM COLES & Co., 225, Piccadilly, LONDON, W.



ADDRESSES (PRIVATE).

COLES' SPIRAL SPRING TRUSS:
INVENTORS AND PATENTEES,
WILLIAM COLES & Co., 225, Piccadilly, LONDON, W.



NURSES.

Note whether Midwifery or Sick Nurses, their terms and private address.

"Sparklets" **Small Steel Receivers containing compressed Carbonic acid gas for the instantaneous Aeration of all Liquids in the Home.**

See page 654.

NOTES.

GAUTIER FRÈRES' *ESTABLISHED 1755.*
FINE LIQUEUR BRANDY.
(20 YEARS OLD.) — *See Advertisement, page xvii.*

INSTRUMENTS, APPLIANCES, OR MATERIALS WANTED.

COLES' SPIRAL SPRING TRUSS:
INVENTORS AND PATENTEES,
WILLIAM COLES & Co., 225, Piccadilly, LONDON, W.

DRUGS WANTED.

COLES' SPIRAL SPRING TRUSS:
INVENTORS AND PATENTEES,
WILLIAM COLES & Co., 225. Piccadilly, LONDON, W.

DRUGS WANTED.

J. WRIGHT & CO., BRISTOL, **Medical Publishers, and Printers,**

Are prepared to negociate for the **Printing** and **Publication** of **Medical** and **Scientific Works** of every description, and their facilities for this class of work are of a very high order.

Cadbury's

COCOA

ABSOLUTELY PURE, THEREFORE BEST.

CADBURY'S Cocoa, on the testimony of the *Lancet*, "represents the standard of highest purity." It is entirely free from all foreign substances, such as Kola, Malt, Hops, &c., nor is alkali used to darken the colour (and so deceive the eye).

Dr. ANDREW WILSON, in a recent article in the *Illustrated London News*, writes: "Cocoa is in itself a perfect food, and requires no addition of drugs whatever."

CADBURY'S Cocoa is absolutely pure, and should be taken by old and young, at all times and in all seasons; for Children it is an ideal beverage, promoting healthy growth and development in a remarkable degree.

CADBURY'S Cocoa is very easily digested; it imparts new life and vigour to those of delicate constitution, and can be safely and beneficially taken by the robust and delicate alike.

CADBURY'S COCOA is a Perfect Food.

75th YEAR.

YORKSHIRE INSURANCE CO.

(*ESTABLISHED AT YORK*, 1824.)

FIRE. — LIFE. — ANNUITIES.

Capital (Authorised) £1,000,000 | **Accumulated Fund - £1,149,216**
„ (Subscribed) £500,000 | **Annual Income - - £237,006**

Trustees—The Right Hon. Lord DERWENT. The Right Hon. Lord WENLOCK.

Head Office - - YORK.
London Office: 82, OLD BROAD STREET, E.C.

SPECIMEN RATES.—Annual Premium to insure the Sum of £100.

Age next Birthday	Premium Payable for the whole of Life.		Limited Payments.				Age next Birthday.
			Table V. With Profits.		Table VI. Without Profits.		
	Table I. With Profits.	Table II. Without Profits.	20 Payments only.	25 Payments only.	20 Payments only.	25 Payments only.	
25	£2 3 10	£1 16 1	£3 3 3	£2 15 11	£2 12 1	£2 6 0	25
30	2 9 1	2 0 9	3 8 8	3 0 10	2 16 10	2 10 5	30

Endowment Insurances payable at a specified age or at previous death.

Age next Birthday.	Table III. With Profits.		Table IV. Without Profits.		* New Table with Deferred Profits.		Age next Birthday.
	Payable at 55.	Payable at 60.	Payable at 55.	Payable at 60.	Payable at 55.	Payable at 60.	
25	£3 5 6	£2 16 8	£2 15 0	£2 7 5	£2 18 11	£2 10 8	25
30	4 0 2	3 7 3	3 8 0	2 16 8	3 12 9	3 0 6	30

* In case of death before the Endowment Age, the sum insured only will be payable.

SPECIAL Attention is called to the Liberal Options which are now obtainable under any of the **Endowment Tables** of the Company, on the attainment of the Endowment Age. These are:—

1.—Payment of the full Sum Insured in Cash, with Bonuses.

2.—The Insurance to be continued without further payment of premium for the original amount of the Policy. The Bonuses, and the balance of the sum insured after providing for this Paid-up Policy, will be paid in cash.

3.—A Paid-up Policy FOR AN INCREASED AMOUNT, payable at death.
In cases 2 and 3 proof of good health will be required.

4.—A **Pension** to be drawn for the remainder of life, and in addition, a Paid-up Policy, without further payment of premium, for the original sum insured.

5.—A **Pension** for the remainder of life.

6.—A **Pension** to wife or child.

7.—A **Deferred Pension** to commence at the death of the life insured, and be payable during the life of the widow, or of a child.

FIRE INSURANCES effected by the Company on the most moderate terms, according to the nature of the risks.

APPLICATIONS FOR AGENCIES INVITED.

INDEX TO LIFE ASSURANCE OFFICES.

A, *when Established;* B, C, D, *Annual Premiums to Insure £100 on death with Profits, at the age of* 30, 40, *and* 50; E, *Assurance and Annuity Funds, exclusive of Paid-up Capital.* **M**, *Mutual Offices;* **P**, *Proprietary Offices.*

Those marked with an asterisk (*) in the E column have not sent revised figures for 1898.

Title, &c., of Office.	A	B	C	D	E
					£
Abstainers and General, Life and Accident, Carrs Lane, Birmingham. *Sec.*, R. A. Craig, A.I.A. P	1883	40/11	55/10	82/3	120,000
Alliance, Fire and Life, Bartholomew Lane, E.C. *Sec.*, Robert Lewis .. .. .. P	1824	48/9	64/5	90/9	2,946,583
Atlas, Fire & Life, 92, Cheapside, E.C. *Act.*, Robert Cross. *Sub. Man.*, A.W. Yeo. *Gen. Man.*, Saml. J. Pipkin. *Further particulars see page* 736 P	1808	49 3	63 7	88 8	1,575,536
British Empire, Mutual Life, 4 & 5, King William Street, E.C. *Gen. Man.*, G. H. Ryan .. M	1847	47/2	63/9	92/3	2,700,000
British Equitable, Life, Queen Street Place, E.C. *Man.*, J. W. Fairey *Further particulars see page* 740 .. .. P	1854	49/-	66/-	94/3	1.519,021
British Workman's and General, Life and Endowments, Broad Street Corner, Birmingham. *Chairman*, F. T. Jefferson. *Sec.*, S. J. Port P	1866	48/2	65/3	91/3	338,335
Caledonian, Fire and Life, 19, George Street, Edinburgh. *Man.*, D. Deuchar. London Office, 82, King William Street, E.C. .. .. P	1805	48/9	64/6	88/6	1,548,971
City of Glasgow, Life, 30, Renfield Street, Glasgow. *Man.*, F. F. Elderton. London Office, 12, King William Street, E.C. *Sec.*, Arthur J. Hemming, F.I.A. .. .. P	1838	48/5	64/6	89/10	2,320,802
Clergy Mutual, Life, 2 & 3, Sanctuary, Westminster. *Act.*, F. B. Wyatt. *Sec.*, G. H. Hodgson M	1829	46/4	62/2	87/4	4,014,239
Clerical, Medical and General, Life, 15, St. James' Square, and Mansion House Buildings. *Act.*, W. J. H. Whittall .. .. .. P	1824	48/7	66/9	96/3	3,483,405
Colonial Mutual, Life and Annuity, 33, Poultry. *Man.*, Edward W. Browne .. .. M	1873	44/8	60/9	86/2	2,153,342
Commercial Union, Fire, Life and Marine, 24, 25, and 26, Cornhill, E.C. *Act.*, T. E. Young, B.A. P	1861	49/5	64/2	87/8	1,909,707
Co-operative, Fire, Life and Fidelity, Long Millgate, Manchester. *Man.*, James Odgers .. P	1867	45 8	61/5	88/4	17,995
Eagle, Life, 79, Pall Mall, S.W. *Gen. Man.* and *Sec.*, Geo. R. Jellicoe .. .. .. P	1807	50/8	65/5	91/4	2,426,999
Economic, Life, 6, New Bridge Street, Blackfriars. *Act.* and *Sec.*, G. Todd, M.A., F.I.A. M	1823	44/3	59/9	87/6	3,783,278
Edinburgh, Life and Annuities, 22, George Street, Edinburgh. *Man.*, G. M. Low, F.F.A. *Sec.*, A Hewat, F.F.A., F.I.A. London Office, 11, King William Street, E.C. *Sec.*, Frank Griffith P	1823	47 7	63 2	89/-	3,164,155
English and Scottish Law, Life, Annuity, Endowment, and Loan, 12, Waterloo Place, S.W. *Gen. Man.*, Arthur Jackson .. .. P	1839	49/6	65/2	90 11	2.245,770
Equitable Life Assurance Society, Mansion House Street, E.C. *Act.*, H. W. Manly *Further particulars see page* 738 .. .. .. M	1762	53/5	€7/11	90/8	4,321,532
Equity and Law, Life, 18, Lincoln's Inn Fields, W.C. *Act.*, A. F. Burridge, F.I.A. .. .. P	1844	48/10	64 6	90/9	3,146,666
Friends' Provident, Life, Annuities, &c., Bradford, Yorkshire. *Act.* and *Sec.*, John Bell Tennant. M	1832	45/9	58 1	79 3	2,650,000
General Life, 103, Cannon Street, E.C. *Man.* and *Sec.*, John Robert Freeman. *Further particulars see page* 741 .. .. .. P	1837	47/10	65/4	92/8	1,620,318

A, *when Established*; B, C, D, *Annual Premiums to Insure £100 on death, with Profits, at the age of 30, 40 and 50*; E, *Assurance and Annuity Funds, exclusive of Paid-up Capital.* M, *Mutual Offices*; P, *Proprietary Offices.*

Title, &c., of Office.	A	B	C	D	E
					£
Gresham, Life, St. Mildred's House, E.C. *Man.* and *Sec.*, James H. Scott .. .. P	1848	49/-	65/8	94/3	6,637,268
Guardian, Fire and Life, 11, Lombard St., E.C., and 21, Fleet Street. *Sec.*, T. G. C. Browne.. P	1821	48/10	64/6	89/3	2,956,239
Hand-in-Hand, Fire, Life and Annuities, 26, New Bridge St., Blackfriars, E.C. *Sec.*, H. H. Ray M	1696	53/7	69/10	96/2	2,806,213
Imperial, Life, 1, Old Broad Street, and 22, Pall Mall. *Act.* and *Gen. Man.*, J. Chisholm, F.I.A. *Sub. Man.* and *Joint Act.*, Fredk. Bell, F.I.A... .. .. P	1820	46/11	62/1	87/5	2,273,335
Lancashire, Life, Fire & Employers' Liability, Exchange St., Manchester. *Gen. Man.* Digby Johnson, London Office, 14, King William St., E.C. *Sec.*, John P. Read .. .. P	1852	48/6	63/6	90/6	1,009,974
Law Life, 187, Fleet Street. *Man.*, E. H. Holt. *Act.*, A. B. Adlard .. .. .. P	1823	49/4	64/10	91/-	3,893,891
Law Union & Crown, Life, Fire, Accident & Annuities, 126 Chancery Lane. *Gen. Man.*, A. Mackay P	1825	48/4	64/-	89/10	3,484,467
Legal and General Life, 10, Fleet Street, E.C. *Act.* and *Man.*, E. Colquhoun ... .. P	1836	50/9	65/11	90/9	3,150,000
Life Association of Scotland, 82, Prince's Street, Edinburgh. *Man.*, John Turnbull Smith. *Sec.*, J. Sharp. London Office, 5, Lombard Street. *Sec.*, J. C. Wardrop .. .. P	1838	50/-	65/4	93/4	4,806,331
Liverpool and London and Globe, Fire, Life and Annuities, 1 Dale St., Liverpool. *Gen. Man. & Sec.*, John M. Dove. London Office, 7, Cornhill, E.C. *Act. & Rest. Sec.*, A. Hendriks, F.I.A. P	1836	49/3	65/6	91/3	5,190,245
London and Lancashire, Life, 66 & 67, Cornhill, E.C. *Genl. Man. & Act.*, W. P. Clirehugh. *Sec.*, G. W. Mannering .. .. P	1862	46/10	€2/4	86/10	1,218,849
London Assurance Corporation, Fire, Life and Marine, 7, Royal Exchange. *Man.* of Life Dept., James Clunes. *Act.*, Geo. King .. P	1720	49/6	64/11	91/5	2,060,497
London, Edinburgh and Glasgow, Life, Industrial, and Accidents, Farringdon Street, E.C. *Sec.*, T. V. Cowling. *Gen. Man.*, Thos. Neill P	1881	48/11	64/7	92/-	173,360
London Life Association, Lim., 81, King William St., E.C. *Act.* and *Sec.*, C. D. Higham, F.I.A. M	1806	60/4	78/10	108/4	*4,381,663
Marine and General Mutual, Life and Marine, 14, Leadenhall St., E.C. *Act.* and *Sec.*, S. Day, F.I.A.. .. .. M	1852	48/10	65/11	91/11	886,208
Metropolitan Life, 13, Moorgate St., E.C. *Act.* and *Sec.*, L. M. Simon. *Further particulars see page 741* .. .. M	1835	49/9	66/4	92/-	2,036,938
National Assurance of Ireland, Fire, Life, and Annuities, 3, College Green, Dublin. London Office, 33, Nicholas Lane, E.C. .. P	1822	48/7	64/3	91/7	*359,916
National Guardian, Life, 21, New Oxford St., W.C. *Man. Dir.*, Jas. Turnbull. *Sec.*, Chas. Hugonin P	1865	48/6	64/8	86/8	16,363
National Mutual Life, 39, King Street, Cheapside, *Act.* and *Man.*, Geoffrey Marks, F.I.A. *Joint Secs.*, H. G. Rowsell and H. J. Lockwood. *Asst. Act.*, R. Todhunter, M.A., F.I.A. .. M	1830	48/4	63/7	89/6	2,547,371
National Provident, 48, Gracechurch Street, E.C. *Act.* and *Sec.*, Arthur Smither .. .. M	1835	50/2	66/3	91/1	5,233,418
New York Life, Trafalgar Buildings, Trafalgar Square, London, W.C. *Gen. Man.*, C. Seaton Lindsay. *Sec.*, Wm. R. Collinson ..	1845	46/7	64/5	97/-	41,295,152
North British & Mercantile, Fire, Life & Annuities, 61, Threadneedle Street, E.C., and 64, Princes Street, Edinburgh. *Life Man.* and *Act.*, London, H. Cockburn, *Sec.*, F. W. Lance. *Further particulars see page 737* .. .. .. P	1809	49/10	66/1	91/11	10,127,670

A, *when Established*: B, C, D, *Annual Premiums to Insure £100 on death, with Profits, at the age of* 30, 40 *and* 50; E, *Assurance and Annuity Funds, exclusive of Paid-up Capital.* M, *Mutual Offices*; P, *Proprietary Offices.*

Title, &c., of Office.	A	B	C	D	E
					£
Northern Assurance, 1, Moorgate St., E.C. *Gen. Man.*, H. E. Wilson .. .. .. P	1836	49/-	64/8	90/10	3,362,297
Norwich Union, Life, Norwich. *Sec.*, J. J. W. Deuchar. London Office, 50, Fleet Street, E.C.	1808	45/8	59/6	85/3	3,486,447
Patriotic Life, Fire, Employers' Liability & Fidelity Guarantee, 9, College Green, Dublin. *Man.*, B. H. O'Reilly. *Act.*, Saml. Hunter. London Office, 69, King William St., E.C. *Man.*, Chas. E. Strong P	1824	48/8	64/5	90/4	164,152
Pearl, Life, London Bridge, City, E.C. *Man.*, P. J. Foley .. .. P	1864	49/-	65/-	92/-	677,568
Pelican, Life, 70, Lombard Street, 57, Charing Cross, *Gen Man.*, James Sorley, F.I.A., F.R.S.E. P	1797	48/11	64/9	91/7	1,309,300
Provident, Life, 50, Regent Street. *Sec.*, C. Stevens P	1806	50/2	66/4	92/10	3,162,969
Provident Clerks, Life and Benevolent Fund, 27 and 29, Moorgate Street, E.C. *Hon. Sec.*, John E. Gwyer.. .. .. M	1840	46/4	62/8	92/2	1,975,000
Prudential (Ordinary), Life, Holborn Bars. *Sec.*, W. J. Lancaster. *Further particulars see page* 740 .. .. P	1848	49/6	65/11	91/11	15,134,804
Refuge, Life, Oxford Street, Manchester. *Man.*, W. Proctor. London Office, 29, New Bridge Street .. .. P	1864	49/3	65/9	91/9	*888,705
Rock, Life Annuity, Capital in Redemption, Workmen's Compensation & Accident, 15, New Bridge Street, E.C. *Act.*, G. S. Crisford, F.I.A. *Further particulars see page* 739 .. .. P	1806	42/5	55/11	81/2	2,133,412
Royal, Fire, Life and Annuities, Royal Insurance Buildings, Liverpool. *Man.*, Chas. Alcock. London Offices, Lombard St. *Sec.*, Jno. H. Croft P	1845	49/9	64/1	88/3	5,539,264
Royal Exchange Assurance, Fire, Life, Annuities, &c., Royal Exchange, and 29, Pall Mall. *Act.*, H. E. Nightingale, F.I.A. .. .. P	1720	48/11	65/-	92/7	2,422,062
Sceptre, Life and Endowments, 40, Finsbury Pavement, E.C. *Sec.*, J. G. Phillips.. .. P	1864	48/8	64/8	90/6	709,596
Scottish Amicable, Life, St. Vincent Place, Glasgow. *Man.*, N. B. Gunn. *Sec.*, W. G. Spens M	1826	51/9	66/3	90/1	3,830,932
Scottish Equitable, Life, 26, St. Andrew Square, Edinburgh. *Man.*, T. B. Sprague, M.A., LL.D. *Sec.*, J. J. McLauchlan. London Office, 19, King William Street, E.C. *Sec.*, F. R. Leftwich M	1831	50/3	65/5	90/9	4,018,265
Scottish Imperial, Life, 183, West George Street, Glasgow. *Man.*, T. Wilkinson Watson. London Office, 15, King William Street, E.C. .. P	1865	46/7	63/5	91/7	466,048
Scottish, Life, Accident and Annuities, 19, St. Andrew Square, Edinburgh. *Man.*, David Paulin, F.R.S.E. London Office, 13, Clements Lane, King William Street, E.C. *Sec.*, George Struthers P	1881	49/5	64/6	90/5	400,784
Scottish Metropolitan, Life, 25, St. Andrew Square, Edinburgh. *Man.*, Wm. G. Bloxsom. London Office, 8, King Street, E.C. *Man.*, H. E. Marriott .. .. P	1876	40/8	54/7	79/7	312,667
Scottish Provident, Life and Annuities, 6, St. Andrew Square, Edinburgh. *Man.*, J. G. Watson. *Secs.*, J. Lamb and H. R. Cockburn. London Office, 17, King William Street, E.C. *Sec.*, J. Muir Leitch .. .. M	1837	41/6	54/9	81/7	10,491,547
Scottish Temperance. Life and Accident, 105, St. Vincent St, Glasgow. *Man.*, Adam K. Rodger. London Office, 96, Queen Street, Cheapside. *Man.*, W. A. Bowie .. .. P	1883	48/6	63/9	89/10	376,067
Scottish Union and National, Fire, Life, and Annuities, 35, St. Andrew Square, Edinburgh. *Sec.*, J. K. Macdonald. London Office, 3, King William Street, E.C. *Sec.*, William Porteous.. P	1824	50/-	65/-	90/-	3,742,789

A, *When Established;* B, C, D, *Annual Premiums to Insure £100 on death with Profits, at the age of* 30, 40, *and* 50; E, *Assurance and Annuity Funds, exclusive of Paid-up Capital.* M, *Mutual Offices*; P, *Proprietary Offices.*

Title, &c., of Office.	A	B	C	D	E
					£
Scottish Widows' Fund, Life and Survivorship, 9, St. Andrew Square, Edinburgh. *Man. & Act.*, A. H. Turnbull. *Sec.*, J. J. P. Anderson. London Office, 28, Cornhill, E.C. *Sec.*, J. W. Miller M	1815	51/9	66/3	90 7	14,500,000
Standard Life, 3, George Street, Edinburgh. *Man.* and *Act.*, S. C. Thomson. London Offices, 83, King William Street, and 3 Pall Mall East. *Sec.*, J. H. W. Rolland .. .. .. P	1825	48/11	64/5	89/-	8,456,930
Star, Life, Annuities, Endowments, 32, Moorgate Street, City. *Act.* and *Sec.*, H. G. Hobson P	1843	48/9	64/11	90/6	4,375,760
Sun, Life, 63, Threadneedle Street, E.C. *Act.*, R. Sewell. *Sec. & Gen. Man.*, E. Linnell. *Further particulars see page* 735 . P	1810	49/2	66/6	94/2	4,000,000
Union, Fire and Life. Cornhill, and Baker Street. *Sec.*, C. Darrell .. . .. P	1714	48/9	64/6	90/10	2,135,329
United Kent, Life and Annuities, High Street, Maidstone. *Gen. Man.*, Walter L. Seyfang. London Office, 124, Cannon St., E.C. *Man.*, A. Wallis P	1824	49/8	64/3	90/5	560,661
United Kingdom Temp., &c., Life, 1, Adelaide Place, London Bridge. *Sec.*, Johnson Brooks M	1840	48/10	64/11	90/6	6,700,000
Universal, Life, 1, King William Street, E.C. *Act.* and *Sec.*, G. F. Hardy, F.I.A. .. P	1834	48/10	63/-	88/8	*1,039,779
University, Life, 25, Pall Mall, S. W. *Sec.*, H. W. Andras, F.I.A. .. .. .. P	1825	50/9	64/7	87/6	*1,056,617
Victoria, Life and Endowment, Memorial Hall Buildings, Farringdon Street, E.C. *Sec.*, Arthur J. Cook, A.I.A. .. .. .. M	1860	49/3	65/7	93/-	87,899
Wesleyan and General, Life, Annuities, Sickness, Corporation St., Birmingham. *Gen. Man.*, R. A. Hunt, F.S.S., A.I.A. London Office, 18, New Bridge Street, E.C. .. .. .. M	1841	48/9	66/6	96/3	395,581
Westminster and General, Life, 28, King St., Covent Garden, W.C. *Act.*, Ernest Woods, F.I.A. P	1836	48/10	65/-	90/6	586,707
Yorkshire, Fire and Life, St. Helen's Square, York. *Sec.*, J. A. Cunninghame. London Office, 82, Old Broad Street, E.C. *Sec.*, James Hamilton. *Further particulars as to a new Endowment Scheme, combining a large amount of assurance with a low premium, see page* 730 .. .. P	1824	49/1	64/9	91 7	*812,971

Medical Sickness and Accident, 33, Chancery Lane, W.C. *Sec.*, F. Addiscott, F.I.A., secure to registered members of the Med. Prof., and Licentiates of Dental Surgery in United Kingdom, a weekly allowance during incapacity from sickness or accident. Mutual Established 1884. Assurance and Annuity Funds £120,000.

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BRISTOL—Corn Street
LEEDS—Sun Buildings, 15, Park Row
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GLASGOW—Sun Buildings, 42, Renfield Street
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SUN INSURANCE OFFICE.

Sum Insured in 1897 - exceeds **£425,000,000**

ATLAS ASSURANCE CO.

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Established in the Reign of George III.

Capital £1,200,000

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Annual Income £593,510

Claims Paid over £14,000,000

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BRISTOL—20, Clare Street
LEEDS—1, East Parade
LIVERPOOL—9, Tithebarn Street
MANCHESTER—30 Booth St., Coope St
GLASGOW—140, West George Street
DUBLIN—55, Dawson Street

LIFE DEPARTMENT.

LIFE POLICIES in this Company, except in very special cases, possess the following

IMPORTANT ADVANTAGES.

1. They are WHOLE WORLD.
2. They are UNCONDITIONAL.
3. They are UNFORFEITABLE.
4. They carry GUARANTEED CASH SURRENDER VALUES.

The WHOLE SURPLUS quinquennially ascertained BELONGS TO THE LIFE POLICY HOLDERS, and all WITH PROFIT POLICIES in force at the valuation date are entitled to PARTICIPATE IN THE BONUS FROM THE DATE OF ISSUE, however short the duration of the policy.

SPECIMEN TABLES—ANNUAL PREMIUMS TO ASSURE £100.

Age next Birthday.	Assurances with Profits declared each Five Years.			Assurances with Profits from the Commencement of the Policy by discounting Future Bonuses.		
	Whole Life.	Premiums to cease at age 60.	Endowment at age 60.	Whole Life.	Premiums to cease at age 60.	Endowment at age 60.
25	£2 4 8	£2 9 7	£2 17 5	£1 14 8	£1 18 6	£2 5 1
30	2 9 3	2 16 6	3 8 3	1 18 6	2 4 2	2 14 7
35	2 15 5	3 6 7	4 3 5	2 3 9	2 12 7	3 8 5
40	3 3 7	4 2 0	5 6 4	2 10 11	3 5 8	4 9 9
45	3 14 6	5 7 8	7 5 2	3 0 9	4 7 10	6 6 11
50	4 8 8	7 17 3	11 2 5	3 13 10	6 10 11	10 2 3

N.B.—Rates for other ages, also results on basis of 1894 valuation, on application.

FIRE DEPARTMENT.

MODERATE RATES. LIBERAL CONDITIONS.
PROMPT SETTLEMENT OF CLAIMS.

SAML. J. PIPKIN, *General Manager.*

ESTABLISHED 1809.

NORTH BRITISH and MERCANTILE

INSURANCE COMPANY.

Chief Offices:

61, Threadneedle St., LONDON. 64, Princes St., EDINBURGH.

Branch Offices in all Important Centres.

TOTAL FUNDS

At 31st December, 1897,

over **Thirteen-and-a-half Millions** Sterling.

INCOME FOR 1897,

£2,927,988.

Ninety per cent. of Life Profits divided amongst the Assured on the participating scale.

THE PROFITS ARE DIVIDED EVERY FIVE YEARS.

NEXT DIVISION—31st DECEMBER, 1900.

Endowment Assurances.	**Death Duty Policies.**
Family Settlement Policies.	**Partnership Insurances.**
Policies payable during lifetime.	**Annuities on one or more lives.**
Premium ceasing at an agreed age.	**Provident Insurances on Children.**
Pensions.	**Special arrangements for Naval and Military Officers.**
Three-fold Option Policies.	

FIRE DEPARTMENT.

Property of nearly every description, at home and abroad, insured at the lowest rates. Losses by Lightning, Damages by Explosion of Gas in buildings (other than Gas Works), made good. Rents of Buildings Insured.

It is worthy of notice that while the Company transacts both Fire and Life Insurance Business, the Accumulated Funds of each Department are, by Special Act of Parliament, kept *entirely separate and distinct*, the funds of the one Department not being available for the obligations of the other. The Funds of each Department are accordingly, in this Company, *separately invested.*

☞ ***Prospectuses and full information may be obtained from the Chief Offices as above, or any of the Company's Agencies and Branches.***

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EQUITABLE
LIFE ASSURANCE
(FOUNDED 1762.) **SOCIETY**

THE OLDEST MUTUAL LIFE OFFICE IN EXISTENCE.

FUNDS IN HAND - - £4,400,000

Being over **23** *times the Annual Premium Income.*

For every **£1,000** which became a claim in 1897, the Society paid on the average **£1,914.**

The latest improvement in Life Assurance is

THE PERFECT ENDOWMENT ASSURANCE

Policy of this Society,

which provides the Assured with a

Guaranteed Income of 5 per cent. per annum

on the amount of his policy and bonuses, from the selected age until death, and his family with the sum assured and bonus additions at his death.

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MANSION HOUSE ST. (Opposite the Mansion House)

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ESTABLISHED 1806.

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Profits divided amongst Policy-holders upwards of £4,140,600

☞ *Members of "The Medical Sickness Assurance Society" can through that Society obtain Special Terms.*

LOW PREMIUM RATES FOR WITHOUT PROFIT POLICIES.

PROVISION FOR OLD AGE PENSIONS.

LEASEHOLD SINKING FUND POLICIES—
EDUCATIONAL ANNUITIES—ENDOWMENTS.

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Proposals are received for Insurances under this Act, or for **General Accidents.**

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Every description of Life Assurance and Annuity Business Transacted.

INVESTED FUNDS - £33,000,000.

The Last Annual and Valuation Reports can be obtained on application.

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ASSURANCE COMPANY,

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The Form of Policy recently adopted by the Company is free from all restrictions as to Foreign Travel and other conditions.

Whole Life Policies made payable in Lifetime without extra Premium by application of Profits.

IMMEDIATE PAYMENT OF CLAIMS.

SEPARATE USE POLICIES.

ACCUMULATED FUND - - £1,585,926
PAID IN CLAIMS - - - - £2,201,668

JOHN WILKINSON FAIREY, *Manager.*

LIFE ASSURANCE AT COST PRICE.

METROPOLITAN
Life Assurance Society,

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Established 1835, for Mutual Assurance.

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Sum Assured, £5,400,000. Assets, £2,040,000.

NO COMMISSION PAID, AND NO AGENTS EMPLOYED.

EXPENSES OF MANAGEMENT ONLY 5 PER CENT. OF INCOME.

NO SHAREHOLDERS TO PARTICIPATE IN PROFITS.

GENERAL LIFE ASSURANCE CO.

ESTABLISHED 1837.

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Horses insured against **Death** from **Accident** and **Disease.**
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Employers insured against **Drivers' Accidents** to **Persons** and **Property** of **Third Persons,** by Collisions, Carelessness & Drunkenness of Drivers, Horses Bolting, Kicking, &c.

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£10	1 Year	Weekly	Repayments	of	..	..	.	£0	4 4
£20	Ditto	ditto	ditto		..	..	.	£0	8 6
£30	Ditto	ditto	ditto		..	..	..	£0	12 8
£40	Ditto	ditto	ditto		..	..	..	£0	17 0
£50	Ditto	ditto	ditto		..	..	..	£1	1 2
£100	Ditto	ditto	ditto		..	..	..	£2	2 4

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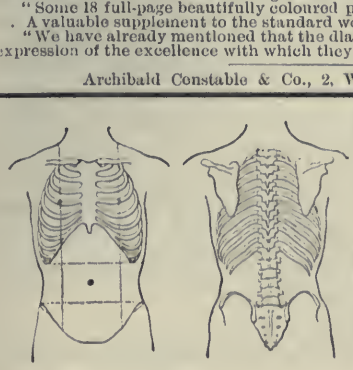

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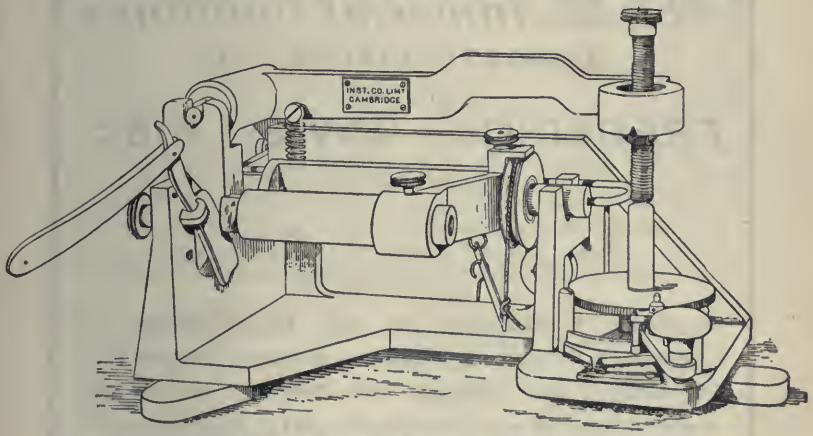

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Practical Anatomy—Demonstrators, J. O. SYMES, M.D., and T. CARWARDINE, M.B., M.S., F.R.C.S.
Physiology—Professor, G. MUNRO SMITH, M.R.C.S., L.R.C.P.
Practical Physiology and Histology—Demonstrator, R. H. CHILTON, M.R.C.S., L.R.C.P.
Chemistry—Lecturer, Prof. SYDNEY YOUNG, D.Sc., F.R.S.
Public Health—Lecturer, D. S. DAVIES, M.D. Lond., D.P.H. Cantab., M.O.H.
Midwifery and Diseases of Women—Professor, A. E. AUST-LAWRENCE, M.D.
Medical Jurisprudence—Lecturer, R. EAGER, M.D. Lond.
Pathology and Morbid Anatomy—Professor, J. MICHELL CLARKE, M.A., M.D. Cantab., F.R.C.P.
Operative Surgery—Lecturer, J. P. BUSH, M.R.C.S.
Practical Medicine—Lecturer, Prof. J. E. SHAW, M.B., C.M.
Practical Surgery—Lecturer, R. G. P. LANSDOWN, M.D.
Practical Midwifery—Lecturer, W. C. SWAYNE, M.D. Lond.
Materia Medica and Practical Pharmacy, Pharmacology and Therapeutics—Lecturer, A. B. PROWSE, M.D. Lond., F.R.C.S.
Biology—Lecturer, S. H. REYNOLDS, M.A.
Practical Chemistry—Lecturer, Prof. SYDNEY YOUNG, D.Sc., F.R.S.
Practical Bacteriology—Lecturer, D. S. DAVIES, M.D. Lond., D.P.H. Cantab., M.O.H.
Comparative Anatomy—Lecturer, Prof. C. LLOYD MORGAN.
Dental Anatomy and Physiology—Lecturer, Prof. G. MUNRO SMITH, M.R.C.S., L.R.C.P.
Dental Surgery—Lecturer, W. R. ACKLAND, M.R.C.S., L.D.S.
Dental Mechanics, Dental Metallurgy—Lecturer, C. A. HAYMAN, M.D., L.R.C.P., L.R.C.S., L.D.S.

COMPOSITION FEE FOR LECTURES, 65 guineas or 55 guineas.

SPECIAL SIX MONTHS' COURSE FOR DIPLOMA IN PUBLIC HEALTH.

1.—*Lectures on Public Health*—D. S. DAVIES, M.D. Lond., D.P.H. Cantab., M.O.H.
2.—*Laboratory Course of Hygienic Chemistry and Bacteriology*—F. W. STODDART, F.I.C., F.C.S.
3.—*Demonstrations on the Various Acts, Orders, By-Laws, &c.*—J. C. HEAVEN, M.R.C.S., D.P.H. Lond.
4.—*Practical Out-door Sanitary Work*—D. S. DAVIES, M.D. Lond., D.P.H., M.O.H.

FEE for the Entire Course, 20 guineas.

An important Medical Library exists in the College, consisting of the combined libraries of the Faculty of Medicine, the Bristol Medico-Chirurgical Society, the Bristol Royal Infirmary, and the Bristol General Hospital. Students have the privilege of using this Library.

Honorary Librarian, L. M. GRIFFITHS, M.R.C.S.

HOSPITAL PRACTICE may be attended either at the Bristol Royal Infirmary or at the Bristol General Hospital.

FEVER HOSPITAL PRACTICE at the Hospitals for Infectious Diseases of the Sanitary Authority of the Corporation of Bristol; and LUNATIC ASYLUM DEMONSTRATIONS at the City and County Lunatic Asylum, Stapleton.

FEES (including Clinical Lectures)—Infirmary: Perpetual Medical and Surgical Practice, 20 guineas each, or in one payment, 35 guineas. Hospital: Perpetual Medical and Surgical Practice, £20 each, or in one payment, 35 guineas. Fever Hospital Practice, and Lunatic Asylum Demonstrations, 3 guineas each.

SCHOLARSHIPS AND PRIZES.—Numerous valuable Scholarships and Prizes are offered by the Faculty of Medicine, and by the Infirmary and the Hospital.

For Prospectuses and Particulars apply to

E. MARKHAM SKERRITT, M.D., *Dean.*

University of Durham.

COLLEGE OF MEDICINE, NEWCASTLE-UPON-TYNE.

DEGREES IN MEDICINE, SURGERY, AND HYGIENE.—Six Degrees and one Diploma are conferred by the University of Durham—viz., the Degrees of Bachelor in Medicine, Doctor in Medicine, Bachelor in Surgery, and Master in Surgery, Bachelor in Hygiene, and Doctor in Hygiene; and Diploma in Public Health.

Attendance at the University of Durham College of Medicine during one of the five years of professional study, or subsequently to qualification elsewhere, is required as part of the curriculum for the Degrees, except in the case of Practitioners of more than fifteen years' standing, who have attained the age of forty years, who can obtain the Degree after examination only.

The first three Examinations for the Degree of M.B. may be passed prior to the commencement of attendance at Newcastle.

A candidate who has a recognized qualification will be exempt from the first examination of the University of Durham except in the subjects of Chemistry and Physics, in which he will be examined; and a Candidate registered as a Medical Student before the 1st October, 1896, and who has passed the First Examination of the Conjoint Board in England of the Royal College of Physicians of London and the Royal College of Surgeons of England, will be exempt from the subject of Biology in the First Examination of the University of Durham.

A candidate who has passed the First and Second Examinations of the University will be exempt from the First and Second Examinations of the Conjoint Board in England, and will be entitled to present himself for the Final Examination of the Board on the completion of the necessary curriculum.

The Extra Arts Examination must be passed previously to the candidate's entry for his Final Examination for the Degree.

All information, together with Examination Papers, &c., is given in the Calendar of the University of Durham College of Medicine, Newcastle-upon-Tyne, or may be obtained from the Secretary at the College.

Scholarships, &c.—A University of Durham Scholarship, value £100, for proficiency in Arts awarded annually to full Students in their first year only. The Dickinson Scholarship—value, the interest of £400, and a Gold Medal—for Medicine, Surgery, Midwifery and Pathology. The Tulloch Scholarship—value, the interest of £400—for Anatomy, Physiology, and Chemistry. The Charlton Scholarship—value, the interest of £700—for Medicine. The Gibb Scholarship—value, the interest of £500—for Pathology. The Luke Armstrong Scholarship—interest on £680—for Comparative Pathology. The Stephen Scott Scholarship—interest on £1000—for promoting the study of Surgery and allied subjects. Heath Scholarship—the late George Yeoman Heath, M.D., M.B., D.C.L., F.R.C.S., President of the University of Durham College of Medicine, has bequeathed the sum of £4000 to found a Scholarship in Surgery, the interest to be awarded every second year. Gibson Prize—value, the interest of £225—for Midwifery and Diseases of Women and Children. The Goyder Memorial Scholarship (at the Infirmary)—value, the interest of £325—for Clinical Medicine and Clinical Surgery. At the end of each Session a Prize of Books and Honours Certificates are awarded in each of the regular Classes. Assistant Demonstrators of Anatomy, Prosectors, and Assistant Physiologists are elected yearly. Pathological Assistants, Assistants to the Dental Surgeon, Assistants in the Eye Department, Clinical Clerks, and Dressers are appointed every three months.

The Royal Infirmary contains 280 beds. Clinical Lectures are delivered by the Physicians and Surgeons in rotation. Pathological Demonstrations are given as opportunity offers by the Pathologist. Practical Midwifery can be studied at the Newcastle Lying-in Hospital, where there is an Out-door Practice of about 300 cases annually.

FEES.

(*a*) A composition Ticket for Lectures at the College may be obtained—

I. By payment of 70 guineas on entrance.

II. By payment of 45 guineas at the commencement of the First Year, and 35 guineas at the commencement of the Second Year.

III. By three annual instalments of 35, 30, and 20 guineas respectively, at the commencement of the Sessional year.

(*b*) Fees for attendance on Hospital Practice:—

For 3 months' Med. & Surg. Practice, £5 5s. | For 1 year's Med. & Surg. Practice, £12 12s
" 6 " " " " £8 8s. | " perpetual " " " £25 25s.

Or by three instalments at the commencement of the Sessional year—viz., First year, 12 guineas; Second year, 10 guineas; Third year, 6 guineas. Or by two instalments—viz., First year, 14 guineas; Second year, 12 guineas.

In addition to the above fees, the Committee of the Royal Infirmary require the payment of 2 guineas yearly up to three years from every Student attending the Infirmary for a year or part of a year. After three years of attendance, such payment will be no longer necessary.

(*c*) Single courses of Lecture, 5 guineas.

Fees for Lectures, etc., at the College must be paid to the Secretary, and Fees for Hospital Practice to the House-Physician at the time of entry.

Further particulars may be obtained from the Sec., PROF. HOWDEN, at the College.

The MIDDLESEX HOSPITAL MEDICAL SCHOOL.

Hospital Staff and Lecturers.—Physicians: Dr. Cayley, Sir R. Douglas Powell, Bart., M.D., Dr. Fowler. Obstetric Physician: Dr. W. Duncan. Physician to Out-Patients: Dr. C. Y. Biss. Assistant Physicians: Dr. W. Pasteur, Dr. W. E. Wynter, Dr. A. F. Voelcker. Consulting Physician to Skin Department: Dr. Robert Liveing. Physician to Skin Department: Dr. Pringle. Assistant Obstetric Physician: Dr. R. Boxall. Consulting Surgeons: Mr. Nunn and Mr. Lawson. Surgeons: Mr. Henry Morris, Mr. Andrew Clark, Mr. Pearce Gould. Assistant Surgeons: Mr. J. B. Sutton, Mr. J. Murray, Mr. T. H. Kellock. Ophthalmic Surgeon: Mr. Wm. Lang. Aural Surgeon: Mr. Stephen Paget. Consulting Dental Surgeon: Mr. Turner. Dental Surgeon: Mr. Storer Bennett. Assist. Dental Surgeon: Mr. Wm. Hern. Other Lecturers: Dr. Mickle, Dr. Plimpton, Dr. Robinson, Dr. Wethered, Dr. Young.

SIXTEEN RESIDENT CLINICAL APPOINTMENTS are open to students annually.

ALL CLERKSHIPS and DRESSERSHIPS are awarded without fee.

TWO BRODERIP SCHOLARSHIPS, of the value of £60 and £40 respectively, are awarded every year for proficiency in Clinical Knowledge.

THE MURRAY SCHOLARSHIP, founded in connection with the University of Aberdeen, is awarded every third year to a Student of the Middlesex Hospital. Next award in 1901.

THE GOVERNORS' PRIZE OF TWENTY GUINEAS is given annually to the Student who shall have most distinguished himself in Clinical work in the Out-patient Department in his final year.

THE HETLEY PRIZE, value £25, is awarded annually for proficiency in Clinical Medicine, Surgery, and Obstetrics.

THE LYELL MEDAL, value £5 5s. for Practical Surgery and Surgical Anatomy, is awarded annually.

THE LEOPOLD HUDSON PRIZE, value £11 11s. for Surgical Pathology and Bacteriology is awarded annually.

PRIZES.—A Prize in Elementary Anatomy and Biology, value £5 5s., will be given to the Student who, at the end of his first Winter Session, shall pass the best written and practical examination.

An Exhibition of the value of £10 10s. will be given at the end of his second Winter Session to the Student who shall pass the best written and practical examination in Anatomy and Physiology.

Middlesex Hospital Entrance Scholarships.—Entrance Scholarships in Classics, Mathematics and Natural Science are offered for competition at the commencement of the Winter Session. Full particulars may be obtained on application to the Dean. Successful candidates are required to become general students of the School. Next Examination 21st and 22nd Sept., 1899.

SCHOLARSHIPS IN ANATOMY AND PHYSIOLOGY.—An Annual Scholarship of the value of £60, is open to Students of the University of Cambridge, and to Students of the University of Oxford, who have completed their Anatomical and Physiological studies. *Subjects:* Anatomy and Physiology, including Histology. Examination to take place 21st and 22nd Sept., 1899.

THE TUTORS *assist all Students, especially those who are preparing for examination, without extra fee; the necessity for obtaining private instruction is thus obviated.*

MEDICAL and SURGICAL REGISTRAR, RESIDENT MEDICAL OFFICER, DEMONSTRATORS of ANATOMY.—These valuable appointments are open to qualified men as they become vacant.

For further information apply to the Dean. W. PASTEUR, *Dean.*

YORKSHIRE COLLEGE, LEEDS—Medical Department.

HOSPITAL STAFF.

Consulting Physicians—T. Clifford Allbutt, M.A., M.D., F.R.S., F.R.C.P.; J. E. Eddison, M.D.
Consulting Surgeons—C. G. Wheelhouse, F.R.C.S.; T. Pridgin Teale, M.A., M.B., F.R.S., F.R.C.S.; T. R. Jessop, F.R.C.S.; E. Atkinson, M.R.C.S., F.L.S.
Physicians—T. Churton, M.D.; A. G. Barrs, M.D., F.R.C.P.; C. M. Chadwick, M.A., M.D., F.R.C.P.
Surgeons—A. W. Mayo Robson, F.R.C.S.; E. Ward, M.A., M.B., B.C.; W. H. Brown, F.R.C.S.I., M.R.C.S.; Harry Littlewood, F.R.C.S.
Ophthalmic and Aural Surgeons—John A. Nunneley, M.B., M.R.C.S.; H. Bendelack Hewetson, M.R.C.S., F.L.S.
Obstetric Physician—James Braithwaite, M.D.
Assistant Physicians—T. W. Griffith, M.D.; E. F. Treveiyan, M.D., B.Sc., M.R.C.P.
Assistant Surgeons—R. L. Knaggs, M.A., M.C., F.R.C.S.; B. G. A. Moynihan, M.S., F.R.C.S.
Assistant Ophthalmic and Aural Surgeon—H. Secker Walker, F.R.C.S.
Dental Surgeon—T. S. Carter, L.D.S.

PROFESSORS, LECTURERS AND DEMONSTRATORS.

Medicine—Prof. Barrs, Phys. Leeds Infirm. Surgery—Prof. A. W. M. Robson, F.R.C.S., Surg. Leeds Infirm. Practical Surgery—E. Ward, M.A., M.B., B.C., Surg. Leeds Infirm. Descriptive, Applied, and Practical Anatomy—Prof. T. W. Griffith, M.D., C.M., Assist. Phys. Leeds Infirm. Lecturer on Osteology—Edmund Robinson, M.R.C.S. Practical Anatomy—Demonstrator: J. K. Jamieson, M.B., C.M.; Hon. Demonstratore: G. L. Wells, M.B., B.S., F.R.C.S.; H. A. Smith, L.R.C.P., M.R.C.S.; B. G. A. Moynihan, M.S., F.R.C.S., Assist. Surg. Leeds Infirm. Physiology, Pract. Physiology and Histology—Prof. De Burgh Birch, M.D., C.M., F.R.S.E.; Demonstrator: A. J. Milroy, M.A., M.B., C.M. Pathology and Practical Pathology—Prof. E. F. Trevelyan, M.D., B.Sc., Assist. Phys. Leeds Infirmary. Surgical Pathology—Hon. Demonstrator, H. Littlewood, F.R.C.S., Surgeon Leeds Infirmary; Demonstrator: C. P. White, M.A., M.B., F.R.C.S. Midwifery—Prof. C. J. Wright, M.R.C.S., Senior Surg. Leeds Hospital for Women and Children. Hon. Demonstrator—E. O. Croft, M.D. Dun., Surg. Leeds Hosp. for Women and Children. Diseases of Women and Children—J. B. Hellier, M.D., Surg. Leeds Hospital for Women and Children. Forensic Medicine—T. Scattergood, M.R.C.S., Cons. Surg. Leeds Hospital for Women and Chiidren; H. J. Campbell, M.D., F.R.C.P., Phys. Bradford Infirmary. Materia Medica, Pharmacology, and Therapeutics—Prof. C. M. Chadwick, M.D., F.R.C.P., Phys. Leeds Infirmary. Pract. Pharmacy—F. W. Branson, F.I.C. Chemistry and Prac. Chemistry—Prof. A. Smithells, B.Sc. Assist. Lecturer and Demonstrator: H. Ingle, F.I.C. Biology and Comp. Anatomy—Prof. L. C. Miall, F.R.S. Physics—Prof. W. Stroud, D.Sc., M.A. Operative Surgery—E. Ward, M.A., M.B., B.C., Surg. Leeds Infirmary. Ophthalmology and Otology—H. S. Walker, F.R.C.S., Assist. Ophthalmic and Aural Surg. Leeds Infirm. Mental Diseases—W. Bevan Lewis, L.R.C.P., M.R.C.S., Med. Director West Riding Asylum, Wakefield. Public Health—Prof. R. N. Hartley, M.B., B.S.

The Lectures & Hospital Practice qualify Students for the various Examining Boards. Students can enter for the Hospital Practice, or the Lectures, or for a Single Course of Lectures separately

The Infirmary in which the Medical and Surgical Practice is conducted has an average of 400 In-Patients. Senior Students are selected, according to merit, for several Resident Appointments. The Dispensary, the Fever Hospital, the Hospital for Women and Chiidren, and the West Riding Asylum at Wakefield, are also open to Students. The Prospectus and further information may be obtained from the Registrar of the College, W. F. HUSBAND, LL.B.

UNIVERSITY of EDINBURGH.

Principal—Sir WILLIAM MUIR, K.C.S.I., D.C.L., LL.D., Ph.D.

The **Winter Session** opens about the middle of October and closes about the end of March; the **Summer Session** opens at the beginning of May and closes about the end of July.

FACULTY OF MEDICINE.

Dean—Professor THOMAS R. FRASER, M.D., LL.D., F.R.S.

The Faculty embraces twelve Chairs and ten Lectureships; and attached to these Chairs there are about thirty Assistants and Demonstrators. Instruction is given in all the main branches of Medical Science, viz.:—

PROFESSORS.

CHEMISTRY—Alex. Crum Brown, M.D., D.Sc., LL.D. ZOOLOGY—J. Cossar Ewart, M.D. BOTANY—Isaac Bayley Balfour, M.D., D.Sc. ANATOMY—Sir William Turner, M.B., D.C.L., LL.D. PHYSIOLOGY—William Rutherford, M.D. MATERIA MEDICA—T. R. Fraser, M.D., LL.D. PATHOLOGY—William S. Greenfield, M.D. MEDICAL JURISPRUDENCE—Sir Henry D. Littlejohn, M.D., LL.D. PUBLIC HEALTH—C. Hunter Stewart, M.B., D.Sc. MEDICINE—Sir T. Grainger Stewart, M.D., LL.B. SURGERY—John Chiene, M.D. MIDWIFERY—Alexander Russell Simpson, M.D. CLINICAL SURGERY—Thomas Annandale, M.D. CLINICAL MEDICINE—Professors Sir T. Grainger Stewart, Fraser, Greenfield, and Simpson (on Diseases of Women).

UNIVERSITY LECTURERS.

MENTAL DISEASES—T. S. Clouston, M.D. DISEASES OF THE EYE—G. A. Berry, M.B. CLINICAL INSTRUCTION ON DISEASES OF CHILDREN—J. Carmichael, M.D., & J. Playfair, M.D. EMBRYOLOGY AND VERTEBRATE ZOOLOGY—J. Beard, D.Sc. REGIONAL ANATOMY—D. Hepburn, M.D. ADVANCED PRACTICAL PHYSIOLOGY—E. W. Carlier, M.D. EXPERIMENTAL PHARMACOLOGY—W. C. Sillar, M.B., B.Sc. PATHOLOGICAL BACTERIOLOGY—G. A. Welsh, M.D. DISEASES OF THE LARYNX, EAR AND NOSE—P. McBride, M.D.

Practical Instruction is afforded in Laboratories furnished with the necessary appliances, and in Tutorial and Practical Classes in connection with all the above Chairs, and under the superintendence of the Professors, and opportunities are afforded to Students and Graduates to extend their practical knowledge and engage in original research.

Opportunities for Hospital Practice are afforded at the Royal Infirmary, the Hospital for Sick Children, Maternity Hospital, the City Hospital, and the Asylum for the Insane. Upwards of 1500 beds are available for Clinical Instruction of Students of the University.

Four Degrees in Medicine and Surgery are conferred by the University of Edinburgh, viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.); and the University may also confer Diplomas in Special Branches of Medical and Surgical Practice on Graduates in Medicine and Surgery of the University.

The minimum total amount of Class Fees for M.B. and Ch.B., including Hospital Fee (£12) is about £115, and the Matriculation and Examination Fees amount to £28 7s. An additional Fee of £10 10s. is payable by those who proceed to M.D., and £10 10s. by those who proceed to Ch.M.

The annual value of the Bursaries, Prizes, Scholarships, and Fellowships in the Faculty of Medicine amounts to about £3,400, and that of the other Bursaries, etc., open to Students of Medicine, amounts to about £1,820.

Instruction is also given in Public Health, and the Degrees of B.Sc. and D.Sc. in Public Health are conferred by the University.

Residences for Students, Graduates, and others are situated within easy reach of the University. Board and lodging on moderate terms.

Further information as to Matriculation, the Curricula of Study for Degrees, etc., may be obtained from the Clerk of Senatus, or the Dean of the Faculty of Medicine; and full details are given in the University Calendar, published by James Thin, 55, South Bridge, Edinburgh.

By Authority of the Senatus,

November, 1898. L. J. GRANT, *Secretary of Senatus.*

Royal College of Surgeons of Edinburgh.

FOUNDED 1505.

Copies of the Regulations for the Fellowship, Licence, and Licence in Dental Surgery, with dates of Examinations, Curricula, etc., for the year 1898-9, are now ready, and may be had on application to—

JAMES ROBERTSON, Solicitor, 48, GEORGE SQUARE, EDINBURGH,
Clerk to the College.

St. Mark's Hospital

FOR

FISTULA AND OTHER DISEASES OF THE RECTUM,

CITY ROAD, LONDON, E.C.

FOUNDED 1835.

Physician:

F. DE HAVILLAND HALL, Esq., F.R.C.P., M.D., 47, Wimpole Street, W.

Surgeons:

DAVID HENRY GOODSALL, Esq., F.R.C.S., 17, Devonshire Place, Upper Wimpole St., W.
F. SWINFORD EDWARDS, Esq., F.R.C.S., 55, Harley Street, Cavendish Square, W.

Assistant Surgeons:

FREDERICK CHAS. WALLIS, Esq., F.R.C.S., 25, Welbeck Street, Cavendish Square, W.
PERCY FURNIVALL, Esq., F.R.C.S., 39, Welbeck Street, Cavendish Square, W.

The days for attendance of Out-patients are, Women—Wednesdays, at 9.30 o'clock in the morning. Men—Saturdays, at 2 o'clock in the afternoon. *Punctually.*

Operations take place on Mondays, 9 a.m.; Tuesdays, 2.30 p.m.

The practice of this Hospital is free to Medical Men and Students.

Clinical Instruction is given by the Surgeons both in the Out-patient Department and in the Wards.

FOR FURTHER PARTICULARS APPLY TO EDGAR PENMAN, *Secretary.*

ST. PETER'S HOSPITAL

For Stone, Stricture, and Urinary Diseases, &c.

ESTABLISHED 1860.

HENRIETTA ST., COVENT GARDEN, W.C.

President—Rt. Hon. THE EARL OF DUNRAVEN AND MOUNT EARL, K.P
Treasurer—F. A. BEVAN, Esq.

ST. PETER'S HOSPITAL is intended for Persons of both Sexes suffering from Stone in the Bladder and other Diseases of the Genito-Urinary Organs, and contains 2 Wards for Men, 24 Beds; 1 Ward for Women, 2 Beds; and a Private Ward for Paying Patients.

The number of Patients treated during the last twelve months was **502** In-Patients, and **4,773** New Out-Patients, the latter being seen on Monday at 2 and 5; Tuesday at 2; Wednesday at 5; Thursday at 2; Friday at 2, Women and Children only; Saturday at 4.

A Donation of Ten Guineas constitutes a Life Governor; a Subscription of one Guinea an Annual Governor. Subscriptions and Donations will be thankfully received by Messrs. BARCLAY & Co., 54, Lombard Street, E.C.; Messrs. HOARE & Co., 37, Fleet Street, E.C.; or by—

IRWIN H. BEATTIE, *Secretary.*

GUY'S HOSPITAL MEDICAL SCHOOL.

The Hospital contains 693 Beds, of which 500 are in constant occupation.

Special Classes are held for Students preparing for the Examinations of the University of London, and other Higher Examinations.

APPOINTMENTS.

All Hospital Appointments are made strictly in accordance with the merits of the Candidates, and without extra payment.

ENTRANCE SCHOLARSHIPS, Yearly in September.

Two Open Scholarships in Arts, one of the value of £100, open to candidates under 20 years of age, and one of £50, open to candidates under 25 years of age. Three Open Scholarships in Science, of the value of £150, £60, and £50, open to candidates under 25 years of age.

PRIZES AND SCHOLARSHIPS

Are awarded to Students in their various years, amounting in the aggregate to more than £650.

DENTAL SCHOOL.

A recognised Dental School is attached to the Hospital, which affords to Students all the instruction required for a Licence in Dental Surgery.

COLLEGE.

The Residential College accommodates about 50 Students in addition to the Resident Staff of the Hospital. It contains a large Dining Hall, Reading Room, Library, and Gymnasium for the use of the Students' Club.

For Prospectus and further Information, apply to the Dean, Dr. SHAW, Guy's Hospital, LONDON, S.E.

THE HOSPITAL FOR SICK CHILDREN,

Which contains 186 beds, and where 500 new Out-Patients are seen weekly, and 1700 attendances are made, has been recognised by the Conjoint Board of England as a place where six months of the fifth year may be spent in clinical work.

The Practice of the Hospital is open to Students who have completed four years of medical study and to qualified medical men.

The Medical and Surgical work of the Hospital includes:—

1. The Practice of the Hospital.
2. Clinical Clerkships and Dresserships in the In-Patient Department
3. Clinical Assistantships in the Out-Patient Departments
4. Lectures and Demonstrations
5. The Pathological Department.

THE PRACTICE OF THE HOSPITAL.

Out-Patients are seen every morning, commencing at 9 o'clock.

Medical In-Patients: Monday, Tuesday, Thursday, and Friday afternoons at 2.30; Tuesday and Friday mornings at 10.15.

Surgical In-Patients: Wednesday, Friday, and Saturday mornings at 9.30; Monday and Thursday afternoons at 2.30. Operations on Monday and Thursday afternoons, and Wednesday and Friday mornings.

The Ophthalmic Surgeon attends on Wednesday afternoons at 2 o'clock, and sees both In- and Out-Patients.

The Surgeon in charge of the Aural Department attends at 9 o'clock on Monday and Thursday mornings. The Dental Surgeon at 9 on Wednesday mornings.

LECTURES AND DEMONSTRATIONS.

Medical: Tuesday and Thursday afternoons, at 2.30 and 4 respectively; Friday mornings, 10.30. **Surgical**: As opportunities occur, of which notices will be posted on the notice board of the Hospital.

All communications and enquiries for forms of application for posts of Clerks and Dressers, &c., should be addressed to—

Great Ormond St., Bloomsbury, W.C. **ADRIAN HOPE,** *Secretary.*

UNIVERSITY OF ABERDEEN (Founded 1494.)

FACULTY OF MEDICINE.

THE Degrees in Medicine granted by the University are—Bachelor of Medicine, Bachelor of Surgery, Doctor of Medicine, and Master of Surgery. They are conferred only after Examination, and only on Students of the University. Women are now admitted to instruction and graduation on the same footing as men. A Diploma in Public Health is conferred after Examination on Graduates in Medicine of any University of the United Kingdom.

The Faculty of Medicine embraces twelve chairs, from which instruction is given in all the main branches of Medical Science.

Practical Classes in connection with these chairs are conducted by the Professors and Assistants in Laboratories furnished with all the necessary appliances; and opportunities are afforded to Students and Graduates to extend their practical knowledge and engage in original research.

Instruction is also given in special departments of Medical Practice by Lecturers appointed by the University Court.

Clinical instruction is obtained in the Royal Infirmary, Royal Lunatic Asylum, the Sick Children's Hospital, the City (Fever) Hospital, the General Dispensary, and Lying-in and Vaccine Institutions and the Ophthalmic Institution.

Bursaries, Scholarships, Fellowships and Prizes, to the number of 50 and of the annual value of £1200, may be held by Students in this Faculty.

The cost of Matriculation, Class and Hospital Fees for the whole curriculum, exclusive of the fees for the Degrees, is usually about £100.

A Prospectus of the classes, fees, &c., together with the regulations for Graduation in Medicine and Surgery, may be had on application to the Secretary of the Faculty of Medicine.

R. W. REID, M.D., F.R.C.S., *Dean of Medical Faculty.*

LIVERPOOL ROYAL SOUTHERN HOSPITAL.

Medical Officers, 1899.

Hon. Consulting Surgeons—Robert Hamilton, F.R.C.S.; Henry G. Rawdon, M.D., F.R.C.S.E.
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Dr. EAGER or Mr. W. EAGER *attends at* 64, *PARK STREET, BRISTOL, on Mondays and Thursdays, from* 12 *to* 3 *o'clock.*

ST. LUKE'S HOSPITAL,
LONDON, E.C.

ESTABLISHED 1751.

THIS Hospital was established for the TREATMENT OF MENTAL DISEASES of the Middle Classes. Preference is given to acute cases, and these are admitted either gratuitously or on payment of a weekly sum varying from 14s. to 30s., according to the circumstances of each. Patients are eligible for admission from any part of the United Kingdom. Forms of application may be had from, and enquiries addressed to, the Secretary, at the Hospital.

The CONVALESCENT ESTABLISHMENT in connection with the Hospital is at ST. LAWRENCE, near RAMSGATE.

W. H. BAIRD, *Secretary.*

Haydock Lodge Asylum,

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Is charmingly situated in a healthy and retired neighbourhood, midway between Liverpool and Manchester, about 2 miles from Newton-le-Willows Station on the London and North Western Railway. It is a comfortably-furnished Country Mansion, especially adapted for the care and treatment of persons of unsound mind.

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CHARLES T. STREET, L.R.C.P. Lond., M.R.C.S. Eng.

Telegrams—"STREET, ASHTON-IN-MAKERFIELD."
Telephone—"No. 11, NEWTON-LE-WILLOWS."

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PLYMPTON, SOUTH DEVON.

Drs. ALDRIDGE & TURNER, Proprietors. *ESTABLISHED* 1834.

PLYMPTON HOUSE is the only Private Asylum in Devon and Cornwall. It is licensed for 23 male and 21 female patients. The house, which is a fine old country mansion, is situated in the midst of an estate of 30 acres of Park land; is five miles from Plymouth, and one mile from the Plympton Station of the Great Western Railway.

This old established Private Asylum affords every possible care and treatment for the **Mentally Afflicted of both sexes**. The proprietors, Drs. ALDRIDGE & TURNER, have had very large experience in the treatment of Mental Disease, both in public and private institutions, and everything that can be done to ameliorate the condition of the chronic, and promote the cure of the acute cases—placed under their charge—is guaranteed.

Terms on application. —*Letters and Telegrams should be addressed to*—

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A Private Asylum for the Cure and Treatment of Ladies Mentally Afflicted.

A Mansion surrounded by twelve acres of garden, situated within two minutes' walk of the Parson's Green Station (District Railway).

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J. R. HILL, L.R.C.P., *Medical Superintendent.*
Son of the late Dr. R. Gardiner Hill.

HALLIFORD HOUSE,

SUNBURY, MIDDLESEX.

ESTABLISHED IN 1841 BY

The Late JOSEPH SEATON, M.D., F.R.C.P. Edin.

This handsome Residence, standing in park-like grounds of forty acres, is appropriated to the reception of a limited number of Patients of the higher classes, who may be suffering from Mental and Nervous Affections, and who are under the constant care of the Resident Medical Superintendent.

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Apply to RESIDENT MEDICAL SUPERINTENDENT.

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A PRIVATE ASYLUM for the Care and Treatment of a few Patients of both sexes suffering from Mental Disorders.

The grounds are extensive (seven acres), and of rare beauty, the views picturesque, and the situation specially healthy; farm attached. Only a limited number of Patients received. Home comforts.

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Resident Superintendent.

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A Registered Hospital for the Upper and Middle Classes.

This Institution is situated in a beautiful and healthy locality, within a short distance of the City of Exeter. There is comfortable accommodation at moderate rates, both in the Hospital itself and at Plantation House, Dawlish, a seaside residence on the South Devon Coast, affording more privacy, with the benefits of sea-air and a mild and salubrious climate. Private rooms and Special Attendants provided, if required. Voluntary Patients or "Boarders," not under certificates, also received.

For Terms, &c., apply to P. MAURY DEAS, M.B., M.S. Lond., Resident Medical Superintendent.

The Warneford Asylum, Oxford,
FOR THE CARE AND TREATMENT OF INSANE OF BOTH SEXES OF THE UPPER AND MIDDLE CLASSES.

President: THE RIGHT HON. THE EARL OF JERSEY.
Chairman of Committee: THE REV. THE WARDEN OF NEW COLLEGE, OXFORD.

THE Asylum is pleasantly situated on Headington Hill, and has been recently enlarged, the new accommodation being arranged as far as is compatible with the requirements of an Asylum, in the manner of an ordinary private residence.

The ordinary charge for Patients is £2 2s. a week, but the Committee have power to alter the amount of charge at their discretion. When a reduction of the ordinary charge is asked, a statement of the circumstances of the Patient should be made by letter to the Committee.

Voluntary Boarders are also received.

Special Rooms and Attendants may be had if required.

Friends of Patients when corresponding may omit "Asylum," and address: "THE WARNEFORD," OXFORD.

For further particulars apply to the Med. Supt., **J. NEIL, M.D.**

Incorporated by Royal Charter.

JAMES MURRAY'S ROYAL ASYLUM, PERTH.

CHAIRMAN - - - - LORD BALVAIRD.

THIS Asylum, for Private Patients only, has been modernized and enlarged by the addition of *two wings* for the reception of acute cases, so as to render it an efficient *Hospital* as well as a comfortable *Home*.

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This Institution is situated in a beautiful and healthy locality, within easy reach of London. It is fitted with every comfort, including the electric light. Patients can have Private Rooms and Special Attendants, as well as the use of General Sitting Rooms, at moderate rates of payment. Voluntary Boarders not under Certificates can be admitted. There is a branch establishment at Brighton, where Patients and Boarders can be sent for a change, and provided with all the comforts of a well-appointed home. Skilled Attendants can be provided for attendance on Patients at their own residences, at moderate charge.

For Terms, apply to the RESIDENT MEDICAL SUPERINTENDENT—
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A PRIVATE ASYLUM,

Situated in the Suburbs of Norwich, and standing in its own grounds of 12 acres. It is licensed for the reception of Forty Male and Fifty-five Female Patients, for whose comfort and convenience every provision is made. Private rooms and special attendance are provided when desired. A Carriage is kept for the use of Patients.

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TERMS ON APPLICATION.

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A CHEERFUL, COMFORTABLE HOME FOR LADIES & GENTLEMEN MENTALLY and NERVOUSLY AFFLICTED.

Voluntary Boarders admitted. Patients are most carefully and kindly treated, and enjoy the greatest possible liberty. Considerable additions, and many structural alterations and improvements have lately been effected, there being now Ten Sitting Rooms in the Establishment, thus allowing for the judicious classification of acute and convalescent cases.

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Visiting Physician: Dr. J. M. PALMER, F.R.C.S.I., THE INFIRMARY, ARMAGH.

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Private Institution for MENTAL and NERVOUS INVALIDS.

EXCLUSIVELY FOR THE RECEPTION OF LADIES.

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THIS Institution provides accommodation for Fifteen Ladies. The patients are under the immediate supervision of Miss ORR and the Family. There are extensive and beautiful views from the House and the surrounding Farm, which contains over 50 acres. The Gardens and Pleasure Grounds afford ample room for the Ladies' recreation.

A TRAINED AND HIGHLY-QUALIFIED NURSE IS EMPLOYED.

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Under the direction of the BROTHERS OF CHARITY.

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This Institution, the first of its kind in Ireland, has been fitted up with the most modern appliances, to secure as far as possible the well-being and a superior degree of comfort to its inmates. The rooms are spacious, well ventilated, heated, and suitably furnished. The Grounds are in a very cheerful and one of the healthiest localities, surrounded by varied and beautiful scenery, and command an extensive view of the City and Harbour of Waterford. The *pension* charged will be found to compare favourably with that of other institutions in the country.

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An old-established PRIVATE HOME
For a few LADIES Mentally Afflicted.

Large House with good grounds. Each Patient is under the personal care and supervision of the Proprietress and her Daughters. Music and Amusements, with every care and home comfort. Easily accessible from Starcross, G.W.R.

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Terms from 25/- per Week.

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A HOME FOR NERVOUS AND MENTAL CASES. Stations, L. & N. West and Mid. Railways.

The House stands in grounds of ten acres (within five minutes' drive of either station), and is devoted to the care and treatment of a few Ladies suffering from Nervous and Mental Disorders, who enjoy the comforts, privacy, and occupations of home life. Voluntary patients are received without Certificates.

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Registered Hospital for Mental Diseases, situated in the City of Lincoln, near to the Cathedral.

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THIS HOME has been established over forty years for the Care and Treatment of LADIES SUFFERING FROM MENTAL AILMENTS.

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Stabling for five Horses.

Three packs of Hounds meet in the district.

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Suitable Gentlemen Companions and Men Servants provided.

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UNDER THE PERSONAL SUPERVISION AND MANAGEMENT OF

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WHO HAS GIVEN THIRTY YEARS TO THIS WORK.

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Four Villa Residences provide accommodation for special cases, or a complete establishment if so desired.

Experienced Governesses and Masters.

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Gravel Soil, healthy locality, near Bushy and Richmond Parks. Easy access from London by L. & S. W. R., or by Road.

For Terms and Particulars address:—

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A Private Home for the Care, Education and Treatment of Backward and Feeble-Minded Children of good social position. A limited number, capable of improvement, are received. The education is of a special character, adapted to the requirements of each child, who receives personal supervision, individual care and attention, as well as all the comfort and privacy of home life. The House stands on an elevated position in grounds of three acres, on gravel soil, and is close to Coombe Wood and Richmond Park. The air is bracing, and there are pleasant walks in the neighbourhood. Cricket and other games provided. It is reached by a drive (12 miles) from London, or by the Norbiton Station on the South Western Railway, one mile distant.

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FIRST-CLASS RETREAT FOR LADIES.

Tennis and Cycling. Also Cottage Homes for Working Women.
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School and Home for Young People

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This Institution has now been carried on for 17 years by Dr. IRELAND. The number of Pupils being limited, a full measure of individual care and attention is secured. Their Education is diligently prosecuted along with such Medical treatment and regimen as may seem beneficial to their state of health. All approved methods of instruction are utilised, and much attention paid to gymnastics and physical training. Special nervous diseases are carefully treated.

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"LICENSED UNDER THE INEBRIATES ACTS."

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A Limited Number only received for Treatment.

Particulars from the Principal - - M. DOUGLAS-SCOTT.

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For Gentlemen, under the Act, and privately.

TERMS, 2 TO 3½ GUINEAS.

APPLY TO

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PRIVATE HOME for a few Patients of good social position, who are received as Members of the Family, either privately or under the Inebriates' Act.

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Principal: H. M. RILEY, Assoc. Soc. Study of Inebriety.
Thirty years' experience. Excellent Medical References.

For Terms and Particulars apply **MISS RILEY, or the Principal.**

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ESTABLISHED A.D. 1876. *No Legal Formality required. None but* GENTLEFOLK *received.*

A beautifully situated detached private residence, devoid of any features marking it as different from the other houses in Sneyd Park—a district on the Sea-wall side of the "Downs," a common of 430 acres. *There is not within a mile of "Dunmurry" a single place where any alcoholic drink can be purchased.* None is ever allowed into the house under any circumstances whatsoever.

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HOME FOR GENTLEMEN in the North of Scotland. Of very old standing. Home Comforts. Trout and Sea Fishing. Good mixed Shooting. HIGHEST REFERENCES.

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A new suite of Baths has been added, including Turkish and Russian Baths for Ladies, Aix Douches, **Radiant Heat Baths,** and a complete Electric Installation for Baths and Medical purposes.

The Establishment has now over 200 Bedrooms.

Terms from 2½ to 4 Guineas per Week inclusive. (*Reduction in Winter.*)

Special provision for Invalids. American Elevator, Electric Light, Night attendance, Rooms well ventilated, and all Bedrooms warmed in Winter throughout the Establishment.

Massage and Weir-Mitchell methods of Treatment can always be given.

A large Staff (upwards of 50) of Trained Male and Female Nurses, Masseurs, and Attendants.

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GREAT MALVERN,

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The Bath is open daily from 7 a.m. to 9 p.m.; on Sunday from 9 a.m to 3 p.m. (Entrance by side door.)

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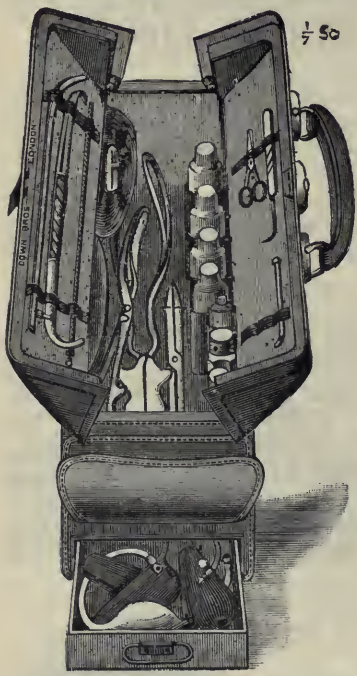

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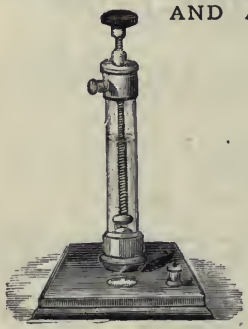

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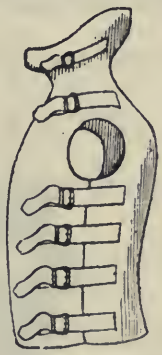

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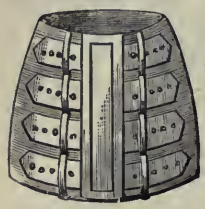

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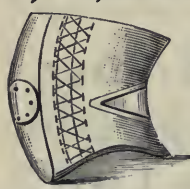

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Small WRIST BANDAGE, 3 ft. by 1½ inch wide, each 1/-.

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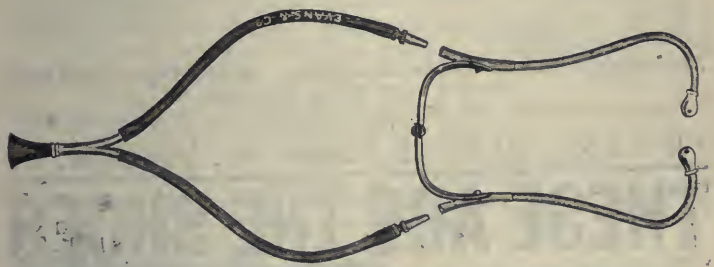

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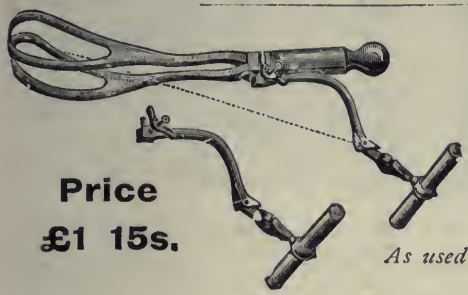

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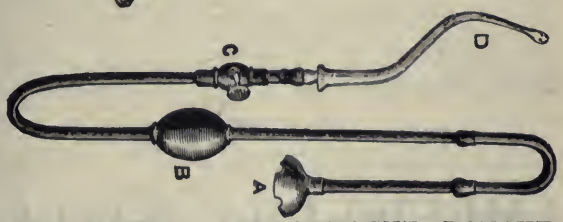

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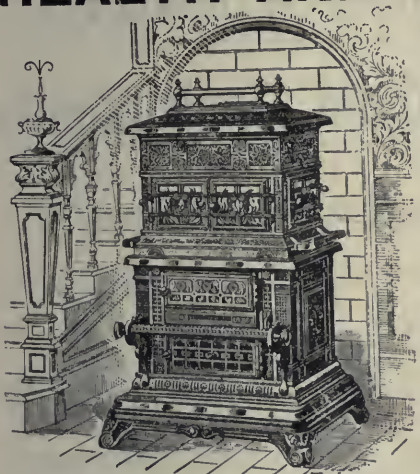

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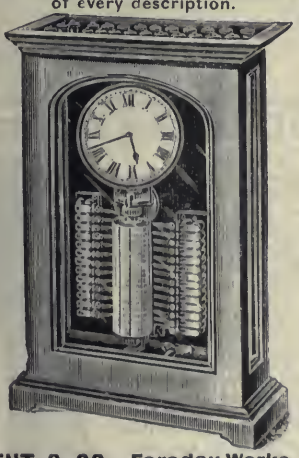

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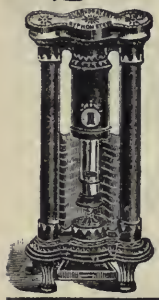

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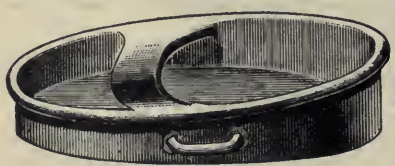

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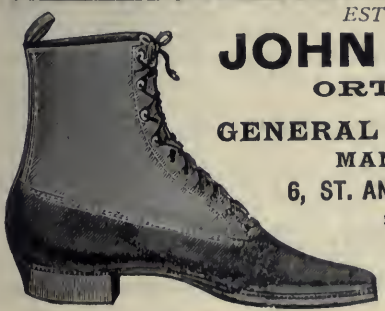

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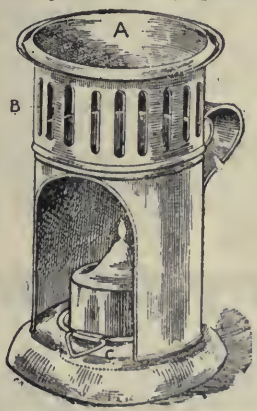

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Improved Forms for Local Authorities, Hospital and Household Disinfection and Deodorization,

NAMELY:

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Liquid Sodium Hypochlorite, containing 10 % *Available Chlorine.*

Simplest and strongest Disinfecting Liquor. No lime—no deposit—no strong smell—completely soluble in fresh or salt water—enormous dilution permissible.

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